THE ALIGARH MUSLIM UNIVERSITY

EXAMINATIONS IN ARTS AND SCIENCE

EXAMINATIONS (GENERAL RULES)

1. Every candidate for a degree granted by
the University shall be
required to matriculate in
accordance with the provisions laid down in
Chapter I and to pass the Theology Examina-
tion, or the examination in Muslim History
prescribed under clause 6 of Chapter I and the
examination prescribed by these Ordinances for
the degree for which he is a candidate.

2. All applications to appear for any exa-
mination shall be submitted, together with the
fee prescribed for that examination, to the
Registrar through the Provost of the Hall in
which the student resides or to which he is
attached, or through the Principal of the Inter-
mediate College in which the candidate has last
studied or in the case of a private candidate
for the Intermediate Examination through the
authority which certifies his fitness to appear
at the examination.

7. A student is considered to have kept a
term, if

    (a) he has attended at least 75 per cent of
        each course of lectures prescibed for

that term, on the subjects which he is
studying ; and if

(*b*(he has obtained a satisfactory character
certificate for that term from the Provost
of his Hall.

The Academic Council shall have power to
condone, for special reasons, any deficiency in
attendance.

8. Notwithstanding anything contained in
these Ordinances the Academic Council, on the
recommendation of the Board of Examinations,
may grant to a teacher in the University, or to
a teacher in an Intermediate College or School
maintained or admitted to the privileges of the
University under section 12 of the Act, or to a
teacher certified as a fit person to appear at the
examination by the Local Government of the
province, or by the Government of the State
in which the college or school is situated, or
in which he is a teacher, special permission
to appear at an examination ;

Provided that no permission shall be given
to appear for examination in any science subject,
unless the Academic Council is satisfied that
the student has performed practical work in a
suitable laboratory ;

Provided also that, a teacher, certified by a local Government or by the Government of a State as a fit person to appear at the examination shall send his application through an authority prescribed by that Government.*

9. With such exceptions as may be necessary in the case of examinations in languages and Theology, every question paper shall be see and answered in English in all examinations. Candidates whose mother tongue is not Urdu may, however, with the special permission of the Chairman of the Department of Theology, answer the papers in that subject in a language other than Urdu.

10. Any student who has failed in a degree examination, other than the B.A. or B Sc. degree examination, may appear at subsequent examinations without keeping terms, provided that he keeps his name on the rolls of the University in accordance with the regulations that may be framed in this behalf.

11. The following examinations of the University shall be held at Aligarh at the intervals specified against each and on such dates as may

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* The Director of Public Instruction is prescribed as authority.

(*ii*) he must be a teacher certified under these Ordinances to be a fit person to appear at the Examination ; or

(*iii*) he must be a private student.

2. No student, in whichever of the three preceding categories he may be included, shall be admitted to the examination unless he shall have passed at least two years previously :—

(*a*) the High School Examination conducted by the Intermediate Examination Board ; or

(*b*) the Matriculation of an Indian University incorporated by law for the time being in force* ; or

(*c*) an examination recognised by any such University to be equivalent to its Matriculation Examination ;

and (save in the case of a teacher included within the second of those categories) has undergone a regular course of studies for not less than two academic years in an Intermediate College, maintained or admitted to privileges by the Aligarh Muslim University under section 12 of the Act :

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*The Osmania University, Hyderabad, is given the privilege of a University incorporated by law for the time being in force,

Provided that, subject to the provisions framed for private candidates, the Academic Council, on the recommendation of the Intermediate Examination Board, may, in special cases, permit a student to appear as a private candidate.

3. A student shall be deemed to be a teacher eligible for admission when he fulfils the conditions specified in clause 7, of Chapter X of the Ordinances.

4. A student shall be eligible to appear at the Intermediate Examination as a private candidate when he has not studied for at least one year previous to the examination at which he appears, in any Intermediate College or other educational institution which presents candidates for the Intermediate Examination of any other University, or in any Intermediate College, maintained or admitted to privileges by the Aligarh Muslim University under section 12 of the Act, provided that he fulfils the conditions specified in one or other of the two following clauses.

5. When a private candidate is a resident of British India he shall be certified to be a fit person to appear at the Intermediate

Examination by an Inspector of schools appointed in this behalf by the local Government of the province* or place where he resides or by some other authority empowered by the local Government for this purpse.

6. (i) The Government of India may direct in respect of private candidates resident in the territory of any Indian Prince or Chief, that private candidates from that State, certified under this clause, may be permitted to appear at the Intermediate Examination, (ii) When a private candidate is a resident of a State in respect of which a direction has been made by the Government of India† under sub-clause (1) he must be certified by the educational Authority of that State to be a fit person to appear at the Intermediate Examination, (iii) When a

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* The Inspector of Schools of the Division in which the candidate resides is the Inspector appointed by the local Government.

† Direction under this clause has been given for the following States :—

1. Ratlam.
2. Cochin.
3. States comprised in Madras, Bombay, Bengal, U. P. Circles.
4. States in Rajputana Agency.
5. States in Baluchistan Agency.
6. Gwalior State.
7. Sikkim State.
8. Manipur State.
9. Assam.
10. Patiala State.
11. States in Punjab Agency.
12. Hyderabad.
13. Mysore.
14. Kashmir.
15. Baroda.
16. Bhopal.
17. States comprised in Central India Agency.

private candidate is a resident of a State, in respect of which no such direction has been made, he must be similarly certified by an officer or authority empowered by the Government of India in this behalf.

7. When a private candidate 'has at any time previously studied in an institution, the Academic Council shall ordinarily require that a satisfactory certificate from the head of that institution as to the charactor of the candidate shall be forwarded by the certifing officer.

8. The Examination shall consist of two parts:—

PARTI.—Comprising of the following subjects:

(1) English ;

(2) Theology or in the case of non-Muslim candidates, Muslim hitory ; and

(3) Urdu.

PART. II—Comprising of any three of the following subjects:—

(1) A classical or a modern European language other than the English Language ;

(2) Mathematics ;

(3) Logic (deductive and inductive) ;

(4) Muslim history ;

*(5) A courses of history other than Muslim history ;

†(6) Political Economy ;

†(7) Geography ;

†(8) Education ;

(9) Physics ;

(10) Chemistry ; and

(11) Biology.

The Academic Council may prescribe special syllabuses in the subjects included in Part II for those students who propose to follow medical or engineering studies. Special courses will also hereafter be provided by Ordinance for those students who propose to follow commercial or agricultural studies.

9. The examination shall be conducted partly by means of question papers and partly *viva voce*, and, in subjects which admit of it, candidates will also be required to undergo a practical examination.

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* A student may take up either Indian History or English History.

† Papers will not be set in the subjects (6), (7), (8) marked with a dager in 1924 & 1925 examinations.

THEOLOGY EXAMINATION

1. A candidate for the Theology Examination may take an ordinary or an advanced course.

2. In the ordinary course no book shall be prescribed and no questions shall be set which may require on the part of the candidate a knowledge of Arabic or Persian.

3. The advanced course in Theology shall be compulsory only for the students who take the degree of Bachelor of Theology.

4. With the permission of the Academic Council, non-Muslim students may take up an examination in an additional course of Urdu or Muslim History in Place of Theology.

5. A candidate for the degree of Bachelor of Arts or Science who has passed the Theology Examination, shall not be exempted from attendance at Theology lectures; but students who have passed the examination in the advanced course of Theology may be exempted from attending such lectures by the Chairman of the Department of Theology.

BACHELOR OF ARTS AND BACHELOR OF SCIENCE

1. The degree of Bachelor of Arts or Bachelor of Science shall be conferred either as an ordinary degree or as a degree with honours.

Chapter XIII, Ordinances

2. Every candidate for either of these degrees must be a matriculated student in accordence with the provisions laid down in Chapter I of the Ordinances.

ORDINARY DEGREE OF BACHELOR OF ARTS OR SCIENCE

3. The examination for the ordinary degrees of Bachelor of Arts and Bachelor of Science consist of two parts :

PART I—Comprising of the following subjects:—

(i) English—General (including *viva voce*

(ii) Urdu ; and

(iii) Theology.

NOTE.—Non-Muslim students may take up an additional course of Urdu or Muslim History in place of Muslim Theology.

PART II.—Comprising of any three of the
following subjects:—

  (*i*) English Literature ;

  (*ii*) Philosophy and Psychology ;

  (*iii*) Economics ;

  (*iv*) History ;

  (*v*) Islamic Studies ;

  (*vi*) Education ;

  (*vii*) Arabic, Persian, or Sanskrit ;

  (*viii*) Geography ;

  (*ix*) Mathematics ;

  (*x*) Physics ;

  (*xi*) Chemistry ;

  (*xii*) Zoology ; and

  (*xiii*) Botany.

4. Candidates can select only such
ombinations of subjects as may be notified by
the Academic Council from time to time.

NOTE.—Every candidate shall take (*i*) and any two from (*ii*),
(*iii*), (*iv*), (*vii*) and (*ix*) from Part II.

5. The Academic Council in special cases
may permit students, who desire to specialise
in Theology or to carry on research work in

Oriental languages, to take up two of the Oriental classical languages mentioned in clause 3 (*vii*) of this Chapter.

6. Candidates may pass the subjects mentioned in Part I either at one examination or separately. The Theology Examination mentioned in Chapter XI shall be deemed to be a part of the examination under Part I.

7. The Academic Council, on the recommendation of the Chairman of the Department of Urdu may prescribe a special course of Urdu for those whose mother-tongue is not Urdu.

8. The examination for Part II shall be open to students who have passed Part I of the examination and who have kept not less than six terms in the University.

9. No student who has failed once in the examination for Part II shall be admitted to a subsequent examination, unless he has attended for three terms after his failure a regular course of study in the University. But a student who has failed more than once in Part II may be admitted to a subsequent examination without attending a further course of study in the University.

10. The names of successful candidates shall be arranged alphabetically in two divisions and shall be published in such manner as may be directed by the Academic Council.

11. Students who are reading for an ordinary degree may, on the recommendation of the Provost, be transferred by the head of the department concerned to the course of study for that degree with honours at any time before the end of the fourth term.

12. A student who has passed Part II of the examination in any three of the Science subjects, Nos. (ix) to (xiii) specified in Part II of clause 3, shall be eligible to receive the degree of Bachelor of Science.

NOTE.—Every candidate for the B. Sc. degree shall take either (1) Mathematics, Physics and Chemistry or (2) Zoology, Botany and Chemistry.

DEGREE OF BACHELOR OF ARTS OR SCIENCE WITH HONOURS

NOTE.—The examination of the degrees of Bachelor of Arts and Bachelor of Science with Honours shall be held in 1925.

14. The examination for the degree of Bachelor of Arts with honours shall consist of two parts :

PART I.—For B. A. and B. Sc. Candidates. The same as for the ordinary degree.

PART II.—For B. A. Candidates :

One of the following honours schools:—

(i) Islamic Studies ;

(ii) Arabic ;

(iii) Persian and Urdu ;

(iv) English Language and Literature ;

(v) Philosophy ;

(vi) History ;

(vii) Economics ;

(viii) Mathematics ; or

(ix) Geography.

PART II.—For B. Sc. Candidates

(i) Physics ;

(ii) Chemistry ;

(iii) Biology ;

(iv) Mathematics ;

(v) Geography.

Each honours school shall include one or more allied subjects as subsidiary subjects.

15. Examination shall be conducted partly by means of question papers and partly *viva voce*; and in subjects which admit of it the candidates

will also be required to undergo a practical examination.

16. The provisions mentioned in clauses 6 to 8 of this Chapter shall apply to part I of the examination for the B. A. or B. Sc. degree with honours, but a candidate for Part II of the examination for the B. A. or B. Sc. degree with honours shall be required to have kept not less than nine terms in the University.

17. The names of successful candidates shall be arranged in three classes and the names in each class shall be arranged in alphabetical order.

18. A candidate who has failed in the examination for the B. A. or B. Sc. degree with honours, but who has attained the standard which shall be prescribed in the regulations for the ordinary B. A. or B. Sc. degree examination shall be awarded the ordinary B. A. or B. Sc. degree.

19. A student who fails to pass the examination for the B. A. or B. Sc. degree with honours, shall, provided that he has subsequently attended for three terms a regular course of study in the University, be permitted to appear

once again at that examination But a student who fails twice in the examination for the B. A. or B.Sc. degree with honours shall not be permitted to appear again at that examination, though he may appear in the examination for the ordinary degree, in which case he will not be required to attend a further course of study prior to such appearance.

DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE

Chapter XIV. Ordinances

1. The Master's degree shall be awarded to the students who

(i) have passed the Bachelor's degree examination of the Aligarh Muslim University or of an Indian University incorporated by any law for the time being in force;

(ii) have kept not less than three terms after passing the examination for the Bachelor's degree with honours, or six terms after passing the examination for the ordinary Bachelor's degree.

(iii) have produced certificates of good character and regular attendance from the Provost of the Hall and from the head of the department of studies concerned;

(*iv*) have passed the prescribed examination, or in the case of students, who have taken the Bachelor's degree with honours, have presented a dissertation approved by the Department of Studies; and

(*v*) have paid the prescribed fees

2. A student who has taken a Master's degree in one subject may appear in any other subject prescribed for the Master's degree after one academic year, without keeping terms in the University, provided that he has kept his name on the University register.

3. The names of successful candidates shall be arrangend in three classes and the names in each class shall be arranged in alphabetical order.

4. A candidate may present himself for examination in any one of the following subjects :—

(*i*) English Language and Literature;

(*ii*) Philosophy;

(*iii*) Political Economy;

(*iv*) History;

*(v) Islamic Studies;

(vi) Arabic Language and Literature;

(vii) Persian Language and Literature;

(viii) Mathematics;

(ix) Physics;

(x) Chemistry;

*(xi) Zoology;

*(xii) Botany; or

(xiii) Sanskrit;

5. A student who after passing the B. Sc. Examination passed the M. A. Examination in Mathematics, Physics, Chemistry, Zoology or Botany, shall be awarded the degree of Master of Scince, if he complies with the other provisions of clause 1 of this Chapter.

6. Candidates who present a dissertation may be required to submit a written examination in the subject to which their dissertation relates.

7. In addition to examination by question papers there shall be *viva voce* examination in all subjects except Mathematics; and in subjects which admit of it the candidates will also be required to undergo a practical examination.

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*No examination will be held in the subjects marked with an asterisk in clause 4, in the year 1924 and 1925.

CHAPTER XV.

DEGREE OF BACHELOR OF LAWS

1. Any student who has been admitted to
the degree of Bachelor of Arts or Bachelor of
Science in this (University) or in any other
Indian University incorporated by any
law for the time being in force or English
or Irish University, or to the degree of Master
of Arts in a Scotch University shall be permitted
to proceed to the degree of Bachelor of Laws.
Students, who have not passed the examination
for the degree of Bachelor of Arts or Bachelor of
Science of this University, shall be required to
pass the examinations prescribed in Part I of
the examination for the Bachelor's degree in
Theology (or the alternative examination in
Urdu or in Muslim History) and the examin-
ation in Urdu.

2. Candidates for the degree of Bachelor
of Laws shall be required to pass two examin-
nations in Law, the first to be called the
" Previous Examination to the degree of
Bachelor of Laws " and the second to be called
the " Final Examination to the degree of
Bachelor of Laws."

LL. B. Previous Examination.

3. The examination shall be open to candidates who:—

> (i) have passed the examination mentioned in clause I of this Chapter, if requird to do so under the provisions of that clause;

> (ii) have kept three terms in the University after passing the B. A. or B. Sc. examination; and

> (iii) have produced certificates of good charactor and regular attendance from the Provost of the Hall and the Chairman of the department concerned.

4. The examination shall be by question papers and may also be *viva. voce.*

5. Every candidate shall present himself for examination in the following subjects:—

> (i) Roman Law ;
> (ii) the Law of Contracts ;
> (iii) the Law of Easements and Torts ;
> (iv) Cirminal Law and Procedure ; and
> (v) Constitutional Law.

6. The Department of Law shall from time to time, recommend the text-books and the Acts to be studied in connection with these subjects.

LL. B. FINAL EXAMINATION

7. No student shall be admitted to this examination, unless he shall have passed the Previous Examination to the degree of Bachelor of Laws in the University and unless, after passing the said examination, he shall have kept three terms in the University.

8. The examination shall be conducted by means of question papers and may also be *viva voce.*

9. Every candidate shall present himself for examination in the following subjects:—

> (*i*) Civil Procedure, Principles of Pleading Limitation ;
>
> (*ii*) the Law relating to Land Tenure, Rent and Revenue in the United Provinces of Agra and Oudh ;

NOTE.—The Academic Council, on the recommendation of the Department of Law, may prescribe by regulations alternative papers for candidates who desire to practise in provinces outside the Provinces of Agra and Oudh.

(*iii*) Hindu Law, as administered by the Court in British India ;

(*iv*) Muhammadan Law, as administered by the Court in British India ;

(*v*) Equity, with special reference to the Law of Trusts and Speific Relief ;

(*vi*) the Law relating to Transfer of Property including the Principles of Equity in so far as they relate to the subject ; and

(*vii*) Jurisprudence.

10. All candidates who pass the examination shall be divided into two classes. A candidate who, out of the aggregate marks obtainable, obtaints not less than 60 per eent. shall be placed in the first class and a candidate who obtains not less than 50 per cent shall be placed in the second class :

provided that a candidate, who does not succeed in obtaining, in respect of each of the groups mentioned in clause 9 of this Chapter, 30 per cent of the marks allotted to that group, shall be held to have failed at the examination.

CHAPTER XVI.

DEGREE OF MASTER OF LAWS

1. No student shall be admitted to the examination for the degree of Master of Laws unless he has passed not less] than two years previous to such examination the final examination to the degree of Bachelor of Laws in the University and unless he has since kept at least two terms in the University.

2. Failure to pass the examination shall not debar a student from presenting himself at any subsequent examination on a new application being forwarded and a fresh fee being paid.

3. The examination shall be conducted by means of question papers and may also be *viva voce*.

4. On the recommendation of the Department of Law, the Academic Council shall, from time to time, indicate generally the subjects for examination.

CHAPTER XVII.
TEACHING CERTIFICATES.

1. A student who has passed the Intermediate Examination of the Aligarh Muslim University, or who has been admitted as an undergraduate under Chaptar I of the Ordinances and who has studied for not less than three terms in the University, shall be permitted to apear at the examination for the the Teaching Certificate of the University.

2. The examination shall be in the theory and in the practice of Teaching. In the theory of Teaching the examination shall be conducted by means of question papers and may also be *viva voce*.

3. Every candidate shall be required to have undergone a practical course of physical training and shall further in the presence of at least two examiners, appointed by the Academic Council, give satisfactory evidence of his ability to manage a class. He shall give two lessons on subjects included in the curriculum of schools, one of which lessons at least shall be in the English language.

Candidates, who desire to offer evidence of special fitness for teaching one or more

branches of the school curriculum, may submit their names for special examination in the same. An indication of any such special qualifications for teaching shall be given in the diploma of the successful candidate. In the case of a candidate, who presents himself for special examination, the second lesson delivered before examiners shall be on one of the special subjects offered by him. Candidates shall receive due notice of the subjects in which they will be required to give a lesson.

4. Every candidate shall be examined in the following subjects :—

    (*i*) Principles of Teaching ;

    (*ii*) History of Education (including lives and works of eminent teachers, and the systems of instruction obtaining in foreign countries) ;

    (*iii*) Method of Teaching and School Management ; and

    (*iv*) School Hygiene.

CHAPTER XVIII.

BACHELOR OF TEACHING.

1. A graduate, who has been admitted to the degree of Bachelor of Arts or Bachelor of Science in the University, or who has been admitted to a similar degree in an Indian University incorporated by any law for the time being in force and who has studied for not less than three terms in the University, shall be permitted to proceed to the degree of Bachelor of Teaching.

2. The examination shall be both in the theory and in the practice of Teaching. In the theory of Teaching the examination shall be conducted by means of question papers and may also be *viva voce*.

3. Every candidate shall be required to have passed through a practical course of physical training and shall further, in the presence of at least two examiners appointed by the Academic Council, give satisfactory evidence of his ability to manage classes. He shall give two lessons in subjects included in the curriculum of a secondary school or of an Intermediate College, one of which lessons at least,

in the case of graduates in Arts, shall be in the English language. In the case of graduates in Science, one of the lessons shall be a lesson in Mathematics, Nature Study, Physics or Chemistry.

Candidates shall receive due notice of the subjects on which they will be required to give a lesson.

4. Candidates who desire to offer evidence of special fitness for teaching one or more branches of the School or Intermediate College curriculum may submit their names for a special examination in the same. An indication of any such special qualifications for teaching will be given in the diploma of the successful candidate.

5. In the case of a candidate who presents himself for special examination in English, History, Geography, Mathematics or a Classical Language, the second lesson delivered before the examiners shall be on one of these subjects offered by him. The test of fitness of a candidate for special distinction in Nature Study, Physics and Chemistry or Manual Training shall include an examination of the record made or practical work done by him during his period of training.

6. A Bachelor of Teaching may offer himself for examination in theory and practice in any additional subject under such conditions as may be prescribed by regulations made in this behalf.

7. Students who fail in the examination in the theory of Teaching may present themselves for re-examination therein at a subsequent examination, without attending a further course, provided that they produce satisfactory evidence that in the *interim* they have been teaching in any institution approved by the Academic Council.

8. Students who fail in practice shall be required to attend the course both in theory and in practice.

REGULATIONS

1.—HIGH SHOOL EXAMINATION*

1. Under clause 2. Chapter VIII of the Ordinances, the Intermediate Examination Board shall conduct the High School Examination once a year.

2. At the High School Examination a candidate shall present himself for the examination in the fowllowing subjects :—

    (1) English.

    (2) Mathematics.

    (3) History and Geography.

    (4) Urdu †

    (5) Muslim Theology
       (Non-Muslim students may take up Muslim History in place of Muslim Theology).

    (6) One of the following :

       (a) A Classical Language.
          (Arabic, Persian or Sanskrit).

       (b) Physics and Chemistry.

       (c) Drawing.

3. Women condidates will be permitted to take Botany and Zoology in place of Physics and Chemistry.

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*High School Examination is the official name of the Matriculation and its courses practically cover the courses of the Matriulation examination of the Allahabad University and the High School Examination of the United Provinces.

† An easier Course will be prescribed for those whose mother tongoue is not Urdu.

4. The Classical languages recognised for this examination are Arabic, Persian, and Sanskrit.

5. A candidate for High School Examination may present himself for one or more subsequent examinations, provided that he shall on each and every such occasion satisfy the Registrar that he has fulfilled the conditions laid down in these regulations as if he were a candidate appearing for the first time.

6. A scholar who is pursuing his studies elsewhere than at a school recognised by the Education Department of the Province or State, as the case may be, and who desires to offer himself as a private candidate shall, not less than three months before the date fixed for the High School Examination, send an application to the Registrar through a Divisional or Circle Inspector or a Chief Educational Officer of a Native State or the Gazetted Officer in the prescribed form, stating

      (*i*) his age at the time of application,

      (*ii*) the conditions under which he has been studying, and

      (*iii*) the School, if any, at which he last studied and his conduct as entered in the scholar's register.

2.—PART III INTERMEDIATE EXAMINATION[*]

(MEDICAL GROUP)

Regulation 1.

PART I.—The same as for the ordinary Intermediate Examination : English, Theology and Urdu.

NOTE.—The Students who appeared in the Intermediate Examination of 1922 and prior to the enforcement of the Ordinances, shall not be required to pass in Theology and Urdu.

PART II.—Comprising of the following subjects : Physics, Chemistry and Biology.

PART III—Chemistry—Organic.

Regulation 2.

The syllabus of studies in English, Physics, Chemistry and Biology included in Parts I and II shall be the same as prescribed for the Intermediate examination.

Regulation 3.

The number of papers, the manner of conducting the examinations, and the standard of passes are laid down in the syllabus, and

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[*]Framed under the last paragraph of Clause 8. Chapter 11 of the Ordinances, for students who propose to follow the Medical profession.

they are the same as were prescribed by the Allahabad University for the P.Sc. examination of 1923.

Regulation 4.

A student who has already passed the Intermediate Examination in the subjects prescribed in Part I and Part II shall be eligible to appear in the examinations in Part III of the Medical group, provided he has attended a course of lectures and performed practical work in Organic Chemistry for a period to be fixed by the Department of Chemistry.

Regulation. 5.

A student who has already passed the examination in all the three parts of the Intermediate Examination shall be deemed to have passed the Intermediate Examination in Medical group mentioned in cluse 8. Chapter XI of the Ordinances.

(Sd.) S. SAJJAD HYDER,
Registrar,
Muslim University, Aligarh.

TEXT-BOOKS AND SYLLABUS

Prescribed for the Examinations of 1925

HIGH SCHOOL EXAMINATION

(MATRICULATION)

English

Three papers will be set—(1) on the prescribed course in prose and poetry with questions on grammar, idiom, etc.; (2) on unseen passages with questions on grammar and idiom ; (3) passages in an Indian Vernacular for translation into English and simple narrative or descriptive composition in English. In the case of candidates who offer English as their mother tongue, the third paper will consist of an essay to be written in English. There will be no oral test, but there will be an examination in English dictation at each centre.

Books prescribed :—

Group A.—

    1. The Royal Crown Reader.

    2. Tales of Indian Chivalary.

3. The Star of India Poetry Book, from which the following poems are prescribed :—

Lochinvar ; The Assyrian Came Down ; The Slave's Dream ; The Charge of the Light Brigade ; Incident of the French Camp ; Abou Ben Adhem ; A Farewell ; Home They Brought her Warrrior Dead; Now ; Maximus; I will be Worthy of it ; Forty Years On.

Or

Group B.—

1. Holme's Literary Readings.

2. Children of the Motherland, by Mrs. Besant.

3. School Favourites, from which the following poems are prescribed :—

Lochinvar ; The Poet's Song ; The Hones Man ; The Plate of Gold ; The Deserted Village ; To a Waterfowl ; To the Cuckoo ; The Daffodils : Alexander Selkirk ; A Psalm of Life ; Ring out Wild Bells ; The Spacious Firmament.

Or

Group C.—

1. Longman's Selections.

2. A Book of Golden Deeds ;— Young.

3. Indian Schools Book of Verse, from which the following poems are prescribed :—

King Bruce; The Slaves Dream; The Lotus Pool ; The Plate of Gold ; The Honest Man ; The Toys ; Incident of the French Camp ; The Old Order Changeth ; Prospice ; My Heart Leaps Up ; The Tiger.

N. B.—The above text-books are arranged in three alternative groups, A. B. and C. and no candidate will be permitted to combine text-books of different groups. Alternative questions will be set in the first paper so as to afford equal facilities to all candidates.

Books recommended for rapid reading and indicating the standard of the unseen passages to be set in the second paper :—

In England, by S. G. Dunn. Macmillan & Co., 12 annas.

Scott's Ivanhoe (abridged) by P. Wren. Oxford University Press, Hornby Road, Bombay. Re. 1.

Stories from the Arabian Nights (Senior Series) Longmans, Green, & Co. 8*d*.

English Readings, by E. S. Oakley, Principal, Ramsay College, Almora. Re. 1-4.

Longmans' English Reading Books for Indian Students, Books 1 and 2, Longmans, Green, & Co. Re. 1 and Re. 1-4.

Tanglewood Tales, by N. Hawthorne. Longmans, Green, & Co. 1*s*.

Man and his Markets, by L. W. Lyle. Macmillan, & Co.

Hawthorne's Tanglewood Tales, Parts 1 and 2. Edited by J. H. Fowler. Macmillan, & Co. 1s. each.

A Naturalist on the Amazons, by H. W. Bates. Abridged and edited by F. A. Bruton. Macmillian, & Co. 2s. 6d.

A Persian Hero. Edited by W. Grandy. Macmillan, & Co. 1s.

Poetical Selections with Notes by P. C. Wren K. E. J. Cooper, Educational Publishers, Bombay. 10 annas.

The Indian Treasury of Englih Verse. Edited with Introduction and Notes, by S. G. Dunn. Oxford University Press, Hornby Road, Bombay.

The Closister and the Hearth, by Charles Reade. Abridged and simplified by S. G. Dunn. Oxford University Press, Hornby Road, Bombay. Re. 1.

Pioneers of Progress, by H. Hayens. Collins Clear Type Press, London.

The Story of Francis Drake, by H. R. Ford. Herbert Stang's Readers. Grade IV. Oxford. University Press, Bombay.

Our Great Adventure, by H. Strang. Herbert Strang's Readers, Grade 3. } Oxford University Presss, Bombay. 6d.

Cedric the Saxon by H. Strang and L. L. Weedon. Herbert Strang's Readers, Grade 3. } 6d.

Mathematics.

There will be two papers in mathematics, one paper in Arithmetic and Algebra, and a second paper in Geometry.

The courses shall be as follows.—

FIRST PAPER. —

(1) *Arithmetic.*—

The whole of Arithmetic. (The use of Algebraical symbols and processes will be permitted.)

(2) *Algebra.*—

The four simple rules, Fractions, Highest Common Factor, Least Common Multiple, Factors, Proportion, Simple Equations of one or more unknown quantities with easy problems, Graphs and their applications.

(*Cadidates will be provided with squared paper*)

SECOND PAPER.—

Geometry.—

(*a*) Practical and (*b*) Theoretical Geometry.

(*a*) The questions on Practical Geometry
will be set on the constructions con-
tained in the annexed Schedule A,
together with easy extensions of
them. All figures should be drawn
accurately, for which purpose every
candidate should provide himself
with a graduated scale, a pair of
set squares, a protractor, a pair of
compasses and a hard pencil.

(*Candidates will be provided with squared paper*)

(*b*) The questions on Theoretical Geo-
metry will consist of Theorems
contained in the annexed Schedule B,
together with easy extensions and
deductions with numerical illustra-
tions. Any proof of a proposition
will be accepted which appears to
the Examiners to form part of a
systematic treatment of the subject ;
the order in which the theorems
are stated in Schedule B is not
imposed as the sequence of their
treatment. In the proof of the
theorems hypothetical constructions
will be permitted.

Schedule A

Bisections of angles and of straight lines.

Construction of perpendiculars to straight lines.

Construction of an angle equal to a given angle

Construction of parallels to a given straight line.

Simple case of the construction from sufficient data of triangles and quadrilaterals.

Division of straight lines into a given number of equal parts or into parts of any given proportion.

Construction of a triangle equal in area to a given polygon.

Construction of tangents to a circle and of common tangents to two circles.

Simple cases of the construction of circles from sufficient data.

Construction of a fourth proportional to three given straight lines and a mean proportional to two given straight lines.

Construction of regular figures of 3, 4, 6 or 8 sides in or about a given circle.

Construction of a square equal in area to a given polygon.

ANGLES AT A POINT.

If a straight line stands on another straight line, the sum of the two angles so formed is equal to two right angles ; and the converse.

If two straight lines intersect, the vertically opposite angles are equal.

PARALLEL STRAIGHT LINES.

When a straight line cuts two other straight lines, and if

(*i*) a pair of alternate angles are equal, or

(*ii*) a pair of corresponding angles are equal, or

(*iii*) a pair of interior angles on the same side of the cutting line are together equal to two right angles, then the two straight lines are parallel; and the converse.

Straight lines which are parallel to the same straight line are parallel to on another.

TRIANGLES AND RECTILINEAL FIGURES.

The sum of the angles of a triangle is equal to two right angles

If the sides of a convex polygon are produced in order the sum of the angles so formed is equal to four right angles.

If two triangles have two sides of the one equal to two sides of the other, each to each, and also the angles contained by these sides equal, the triangles are congruent.

If two triangles have two angles of the one equal to two angles of the other, each to each, and also one side of the one equal to the corresponding side of the other, the triangles are congruent.

If two sides of a triangle are equal, the angles opposite to these sides are equal ; and the converse.

If two triangles have the three sides of the one equal to three sides of the other, each to each, the triangles are congruent.

If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent.

If two sides of a triangle are unequal, the greater side has the greater angle opposite to it; and the converse.

Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest.

The opposite sides and angles of a parallelo-gram are equal ; each diagonal bisects the parallelogram and the diagonals bisect one another.

If there are two or more parallel straight lines and the intercepts by them on any straight line that cuts them are equal, then the corresponding intercepts on any other straight line that cuts them are also equal.

Parallelograms on the same or equal bases and of the same altitude are equal in area.

Triangles on the same or equal bases and of the same altitude are equal in area.

Equal triangles on the same or equal bases are of the same altitude.

Illustrations and explanations of the geometrical theorems corresponding to the following Algebraical identites : —

$$k(a+b+c+ \ldots) = ka+kb+kc+\ldots\ldots$$
$$(a+b)^2 = a^2+2ab+b^2$$
$$(a-b)^2 = a^2-2ab+b^2$$
$$a^2-b^2 = (a+b)(a-b)$$

The square on a side of a triangle is greater than equal to, or less than, the sum of the squares on the other two sides, according as

the angle contained by those sides is obtuse, right or acute. The difference in the case of inequality is twice the rectangle contained by one of the two sides and the projection on it of the other.

Loci

The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points.

The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angles between the two given lines.

The Circle

A straight line drawn from the centre of a circle to bisect a chord which is not the diameter is at right angles to the chord : conversely ; the perpendicular to a chord from the centre bisects the chord.

There is one circle and one only which passes through three given points not in a straight line.

In equal circles (or in the same circle) (*i*) if two arcs subtend equal angles at the centres,

they are equal ; (*ii*) conversely, if two arcs are equal, they subtend equal angles at the centres.

In equal circles (or in the same circle, (*i*) if two chords are equal, they cut off equal arcs ; (*ii*) conversely, if two arcs are equal, the chords of the arcs are equal.

Equal chords in a circle are equidistant from the centre ; and the converse.

The tangents at any point of a circle and the radius through the point are perpendicular to one another.

If two circles touch, the point of contact lies on the straight line through the centres.

The angle which an arc of a circle subtends at the centre is double that which it subtends at any point on the remaining part of the circumference.

Angles in the same segment of a circle are equal ; and if the line joining two points subtends equal angles at two other points on the same side of it, the four points lie on a circle.

The angle in a semi-circle is a right angle, the angle in segment greater than a semi-circle is less than a right angle, and the angle in a

segment less than a semi-circle is greater than, a right angle.

The opposite angles of any quadrilateral inscribed in a circle are supplementary ; and the converse.

If a straight line touch a circle and from the point of contact a chord be drawn : the angles which this chord makes with the tangent are equal to the angles in the alternate segments.

If two chords of a circle intersect either inside or outside the circle, the rectangle contained by the parts of the one is equal to the rectangle contained by the parts of the.other.

History and Geography.

There will two papers each of three hours. One will be in History and the other in Geography.

Indian History.

1. THOMPSON.—History of India.
                    or
        VINCENT SMITH.—Oxford Students' History of India.

English History.

1. OMAN.—Junior History of England.

Geography.

THE FUNDAMENTALS OF SCIENTIFIC GEOGRAPHY.

INDIAN SEASONS.—

Three :—

OTHER COUNTRIES HAVE.—

Temperature.—

(1) Cold. (2) Cool. POLAR.

(1) Cool. (2) Warm. BRITAIN, NEW ZEALAND.

(1) Cold. (2) Warm. RUSSIA, CANADA.

Rainfall.—

(1) Practically no rain. SAHARA. CANADA.

(2) Rain at all seasons. PATAGONIA. BRITAIN.

(3) Summer rains.* EASTERN U.S.A., CHINA.

(4) Winter rains.* WESTERN U.S.A., MEDI-
TERRANEAN.

BAROMETRIC PRESSURE.—

The mercury barometer—correlate with Physics.

Low-pressure and high-pressure areas of the world. (Avoid reasons).

Local law and high pressure-cyclones and anti-cyclones. Ferrel's Law.

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* Avoid reasons at this point.

Trade Winds in general. Application to India—the monsoon, which is abnormal.

Study of Indian Daily Weather Report in some detail:—Maxima and minima of temperature : rainfall statistics: good and bad monsoons,-their economic importance.

Further study of rainfall—its causes. Factors which affect its distribution :—pressure ...winds...changes from sea to land...changes of altitude...convectional equatorial rains.

Types of rainfall :—monsoon...summer rain...winter rain—westerlies ... lack of rains... (different reasons for Sahara, Australia, Atacama, Khalahari, Rajputana, Gobi).

VEGETATION :—A result of climate.

The chief vegetation belts of the World :—

Tundra (and mountain flora).

Forest

Steppe or temperate grass-land.

Savana or sub-tropical and tropical grass-land.

Desert.

Tropical rain-forest or selva.

THE PRACTICAL APPLICATION of the study of climate, *i.e*, the economics of climate.

Distribution of :—

Rice	... Moist heat	... *N. B.*— Largely consumed locally rather than exported.
Maize	... Summer rain and hot sun.	Highly developed industry in U. S. A.
Wheat	... The great crop of the temperate zone.	Moisture, then sun, which need not be hot.
The Vine	... Hilly, sunny, cool. Soil very important.	Very valuable commercially.
Pulses	... India par excellence.	*N. B.*— Mainly consumed locally.
Cotton	... 7 months without frost. Tropical & sub-tropical. Original habitat, India, and the Archipelago.	Enormously important commercially. U. S. A., Egypt.

Tobacco ... Soil very impor- Native of Ame-
               tant. Will grow   rica.
               anywhere where
               there is no frost
               during   early
               growth.

These are are taken as being typical.

THE EARTH AND ITS MOVEMENTS.—Revolution and rotation and their consequences.

A.—THE GEOGRAPHY OF INDIA :—

Regional. Economic. Ethnographical. Political. Historical.

B.—THE GEOGRAPHY OF ASIA OUTSIDE INDIA.

INDIA,—(1) *Mountain.* (2) *Plain.* (3) *Peninsula.*

1. "Young folded" mountain system:—
Description of the Tertiary epoch of folding—
Alps, Caucasus, Himalaya, Andes, Rockies.
Trend-lines determined by massifs of older
rock,—hence the curves in the ranges. So the
Alpine thrust confined by Auvergne, the Jura,
and the whole of the South German blocks.
The Himalaya likewise confined by Tibet and
the Chinese highlands.

Practical effects :—(*a*) A climatic barrier;
(*b*) A political barrier.

(*a*) Northern polar winds cannot penetrate to the South of the range. Hence intense cold only found in elevated regions. Snow unknown and frost rare.

(*b*) Position of the Himalaya has determined the History of India.

Only approachable from—

The North-West. Alexander—Islamic Expansion.

The Sea. France, Portugal, Britain.

So Russia and China have never exerted any influence upon India. Further, the pugnacity of Indian peoples is at a maximum in the north-west and at a minimum in the north-east,— a direct outcome of Physical conditions, which include difficulty or ease in gaining a living from the soil.

2. *Plain*—Monotony of level. What determines sites of human settlement ?—(*a*) soil, (*b*) water (*c*) rivers as routes. Hence great confluence cities like Allahabad and the thinness of population in Rajputana.

3. *Peninsula.*—Similar structure to Australia, S. Africa, Arabia and Eastern Brazil, *i.e.*, horizontal old unfolded rocks, forming a table-land—originally no doubt one great continent (Gondwanaland) oceans being subsequently formed by the subsidence of great masses along lines of fault or cracking.

The impenetrability of such highlands.
THE CLIMATE OF INDIA in detail. (Further study of the Indian Daily Weather Report).

THE ECONOMIC PRODUCTS OF INDIA.

THE HISTORICAL GEOGRAPHY OF INDIA.

ASIA OUTSIDE INDIA : in as little detail as possible :—

(1) *China* another monsoon country, but most subject to *north-eastern conditions*, which in the case of China are *marine* conditions.

(2) *Japan.*—The Island Empire of Asia.

(3) *The Tropical Islands.*—Equatorial : two rainy seasons: dense rainforest: rubber.

(4) *Siberia.*—The typical land of climatic extremes.

All to be treated from the points of view of—

Structure, climate, economic products, human geography.

A   **Classical Languages.**

There will be two papers of three hours each in Classical Languages consisting respectively of (1) Text and 2) Grammar, Composition, and Rapid Reading.

SYLLABUS.

(a) Arabic.

Prescribed course—

Kalila wa Dimna; the prefaces and باب‌الاسدوالثور

NOTE.—A number of books useful for teachers are contained in the List of books approved for the use of teachers in Anglo-Vernacular and Vernacular Schools, 31st July, 1916. and the annual supplements.

Grammars recommended

Elementary Arabic Grammar : Thorntion

Arabic Grammar : Thatcher

هداية النحو

كتاب قواعد اللغة العربية (published in Egypt)

حافظ عبد الرحمان صاحب : كتاب الصرف .

(b) Persian.

Prescribed course—

1. گلستان

(1) دیباچه

(2) first باب except the last but one حکایت

(3) fourth باب

(4) eighth باب omitting the following couplet

جوان بختی مه بی رنج

بوستان .2

(1) Preface except lines 33–39, and also
كريم اسجايا up to end.

(2) Chapter I (except the whole piece
(مر ابليس را ديد including ز درياے عمان

(3) Chapter II (except چو دور خلافت بمامون)

(4) Chapter III, only the following pieces
should be retained :—

1 – قضا را من و پيرے از اریاب

2 – رهے عقل جز پيچ در پيچ نيست

3 – رئيس دهے پسر در رهے

4 – مگر ديده باشي كه در باغ و راغ

5 – ثنا گفت بر سعد زنگي کسے

(5) Chapter VI, only the prelude, the rest
should be omitted.

(6) Chapter VII, the prelude, and the follow-
ing pieces :–

مرا در نظاميه ادرار بود up to بد اندر حق مردم نيک و بد

(7) Chapter VIII, only the following pieces:–

1 – جوانے سر از راه مادر يتافته

2 – شب از بهر آسايش

3 – ببين تا يک انگشت

4 – نشست از ارادت بدك

(8) Chapter IX, the prelude, and also the following pieces :—

1 – کهن سالی آمد

2 – جوانا رہ طاعت

3 – خبر داری از استخوان

(9) Chapter X, the prelude and قلم می بلرزد

Students who offer Persian are required to have such a knowledge of the Etymology of the Arabic language as will enable them to explain all Arabic words and phrases which may occur in the text-book.

NOTE—Persian words must be written in the Persian character

Grammar :—

جامع القواعد (مولوی محمد حسین آزاد) رفاہ عام پریس الہ آباد

Book recommended for *Supplementary reading—*

Farsi Jadid, Volume II, by Syed Muhammad Ali. Professor of Persian, Nizam College, Hyderabad. New and improved edition Re. 1.

(c) Sanskrit.

I.—*Text books prescribed.—*

(1) *Prose*—Mitralabha—the first book of Hitopadesha.

(2) *Poetry*—Nalopakhyana. Published by the Belvedere Press, Allahabad.

II.—Grammar—Simple declentions and conjugations, and Elementary Rules of Syntax and Compounds.

III.—Unseens.—Kusuma Mala, Part I, by V. S. Apte. Published by Ramchandra Govind and Son, Bombay.

NOTE—The students should be taught to study this book by themselves at home with the help of a Sanskrit English Dictionary and to take help from their teachers only in cases of utmost difficulty.

IV—Composition.—Bhandarkar's Second book of Sanskrit or K. P. Trivedi's Sanskrit Teacher.

NOTE.—Sanskrit must be written in the Devanagri character

Science (Physics and Chemistry).

The examination will consist of two Papers:

(1) Physics. (2) Chemistry and a practical Examination.

Physics Syllabus.

The High School Examination in Science shall comprise two papers and a Practical Examination.

First Paper	...	Mechanics and Physics
Second Paper	...	Chemistry

Definition of Physics.

Measurement of length, area, volume and mass. Use of the balance. Density, Relative density.

Effects of heat, temperature and quantity of heat. Expansion of solids, liquids and gases. Mercury and water thermometers. Centigrade and Fahrenheit scales. Clinical thermometer. Unit of heat, specific heat. Melting and boiling. Evaporation. Light travels along straight paths. Shadows. Simple experiments with minors. prisms and lenses.

Simple phenomena of attraction and repulsion. Magnetising a knitting needle. The compass.

Production by friction; attraction and repulsion. Electroscope. Simple frictional machine. Setting up a simple cell. Magnetic and heating effects.

Practical Work. —

Students should perform the following experiments in the laboratory. An account of each experiment should be written in a special note-book which will be examined by the

University Examiners. The account of each experiment should be signed by the Science teacher.

To find the number of centimetres in 1″ and to compare a metre with a yard.

The use of the balance and the weight box.

Density of a cylinder and a cube measurement,

Density of irregular solids by displacement of water.

Rapid reading of centigrade and Fahrenheit thermometers.

Determining the boiling point of pure water and an acqueous solution of salt or sugar.

To verify the " angle " law of reflection at a place minor and to find the position of the image formed in a place minor.

To trace the path of a ray through a glass plate.

To determine the focal length of concave mirrors and thin convex lenses by forming an image of the sun.

Chemistry Syllabus

There will be one paper carrying fifty marks and one practical Examination carrying twenty-five works.

Theoretical —

Common properties of common substances, solubility, crystallisation, distillation, mixtures and compounds, solutions, elements and compounds, metals and non-metals, distinction between acids and alkalis.

The atmosphere, combustion, rusting, oxidation.

Difference between chemical and physical change.

Oxygen, water, nitrogen, hydrogen, carbon, carbonic acid gas, chalk.

The effects of heat upon the following substances :—

Chalk, green vitriol, sal-ammonia, mercuric oxide.

Chlorine, hydrochloric acid, ammonia.

Practical work :—

1. Separation of mixture of salt and sand.
2. Burning of magnesium in air.

3. Heating of nitre, blue and green vitriols, mercuric oxide, ammonium chloride, sugar and sulphur.

4. Cork boring and tube cutting and bending. Fitting up a wash bottle.

5. Preparation of oxygen, hydrogen, carbon-dioxide, ammonia, chlorine, hydrochloric acid gas.

6. Preparation of zinc sulphate, calcium chloride, sodium sulphate.

Urdu

Three papers will be set in each of the Vernaculars. One paper will be set in Poetry and another in Prose and an additional paper on—

Composition. Essay and Translation from English into Vernacular.

Original composition will not form part of paper II.

Critical and grammatical questions will be set in the first and second papers.

Books prescribed :—

    (a) *Qand-i-Urdu*—M. H. Jalal-ud-din Ahmad Jafri, (Anwar-i-Ahmadi Press Allahabad).

    (b) Taubatun Nusuh (M. Nazir Ahmad) for those whose mother tongue is not Urdu.

Drawing

There will be three papers :—

Free-hand Drawing.— Light and shade, as in MACMILLAN's *Official* Drawing Books Nos. 9, 10, 14, 19, or any similar books, as also copying to an enlarged and reduced scale.

Geometrical Drawing.—Syllabus in Geometrical Drawing :—

(*i*) Theory and use of instruments, specially of the protractor and Marquois scales.

(*ii*) Plain Block Letter Printing.

(*iii*) Lines and Angles and Scales of Chords.

(*iv*) Proportionals.

(*v*) Triangles.

(*vi*) Quadrilaterals.

(*vii*) Circles and Tangents.

(*viii*) Regular Polygons.

(*ix*) Plain and Diagonal Scales—their theory constrution and practical use in the construction, reduction, enlargement and copying of figures.

(*x*) Circles touching lines and circles.

(*xi*) Inscription and circumscription of rectilineal figures.

(*xii*) Areas of rectilineal figures and circles.

(*xiii*) The Ellipse.

The book suggested is—

Geometrical Drawing for Arts students, by J. H. Morris: specially edited for Indian students, by William Jesse, M.A., pp. 1 to 107 (omitting pp. 68 to 71) and pp. 117 to 120.

Free-hand Model Drawing.—Rectilineal and curved forms in outline, and in addition simple everyday objects, such as tables, trestles, *surahis*, etc., as also the following geometrical solids : cubes, prisms, pyramids, cylinders, cones, spheres.

Theology

(*a*) Sunni Theology

(۱) ابواب قدوري

(۲) العقيدة السنه

(۳) لكچر اسلامي اخلاق

(*b*) Shia Theology

(۱) ترجمه اردو عقائد ابن بابويه قمي-اول نصف

(۲) باب الصوم از جامع عباسي

(*c*) Muslim History

In place of Theology :

تذكرة الكرام (پہلے چار باب)

INTERMEDIATE EXAMINATION

English

There will be *one* paper on the prescribed Prose course and a *second* paper will be set on the Poetry course ; and in each paper one question will be set on " Unseen " passages.

In place of the Unseen Prose passages candidates who offer English as their mother-tongue will be required to answer questions on supplementary prescribed texts.

A third paper will include (*a*) translation from a vernacular into English, and (*b*) a narrative or descriptive piece of composition in English. In the case of candidates who offer English as their mother-tongue, the third paper will consist of an Essay, together with questions on English composition and on the history of English literature from 1,500 as in Hudson's Outline History of English Literature (Bell and Co).

NOTE.—1. In the case of books prescribed for detailed study candidates will be expected to show a close familiarity with the text, including meaning of words, construction of sentences, historical and other allusions, as well as knowledge and understanding of the subject matter. They should be able to indicate contexts and to paraphrase and explain any difficult passages in simple and correct English.

2. In the case of books prescribed for general study detailed knowledge of the text will not be required, but candidates will be expected to show that they have read the course with intelligence and with some appreciation.

Books prescribed :—

Prose.—(a) For detailed study—

    *Church :—*Trial and death of Socrates. The Apology, Crito, and last part of Phaedo (Chapter LXIII to end).

    *Ruskin—*Sesame and Lilies.

(b) For general study—

    *Dickens—*Tale of two Cities.

    *Macaulay—*History of England, Chapter III.

Poetry.—(a) For detailed study.

    *Milton—*Lycidas.

    *Browning—*A Grammarian's Funeral

    *Shelley—*The Cloud.

    *Keats—*Ode to a Nightingale.

    *Tennyson—*Sir Galahad.

    *Longfellow—*King Robert of Sicily.

(b) For general study—

    *Shakespeare—*Merchant of Venice.

    *Tennyson.—*The Lotos Eaters.

        The Higher Pantheism.

        Crossing the Bar.

        " Ring out wild bells."

    Keats—   St. Agnes Eve.

        La Belle Dame Sans Merci.

Byron—" The Defeat of Sennacherib."
There may be none of beauty's daughters.

Shelley—To Night.

Newman—Lead Kindly Light.

Whittier—The Eternal goodness, stanzas 10, 11, 16, 17, 18, 19, 20.

Tagore—Three poems from Gitanjali, *viz.*

35—" Where the mind is without fear and the head is held high."

45—" Have you not heard his silent steps ?"

49—" You came down from your throne and stood at my cottage door."

Supplementary prescribed texts for candidates whose mother-tongue is English :—

Coming and Passing of Arthur ; Hereward the Wake.

NOTES.—(*a*) Half the total of marks will be allotted to the portions for detailed study, 30 per cent to the portions for general study, and 20 per cent. to Unseen passages and grammar.

(*b*) Grammatical questions will be asked, including Parsing, Analysis, the Sequence of Tenses, and Conversion of the Direct and Indirect forms of speech.

(*c*) The attention of candidates is drawn to the fact that examiners have been instructed to deduct marks for inaccuracy in English.

Classical Languages.

Arabic and Persian :—

Three papers will be set in each of these languages. The first paper will be on the prescribed Text-books and Grammar. The second paper will contain passages for translation into English from the books recommended for rapid reading and from others of equal difficulty. The third paper, on Composition, will contain a passage or passages of English Prose to be rendered into the Classical Language.

(*a*) Arabic

Prescribed course—

Elementary Arabic Second Reading Book (Ed. Nicholson. Cambridge.)

Abu l-atahiya Diwan Part two and Part one كافية الأدب

For Grammars recommended see under Junior School Examination.

(*b*) Persian

Prescribed Course :—

(*i*) Text—

Prose-Anwar-i-Soheili باب اول (in the Story of بزوية instead of بزوية درد بازو دفت ...بزوية درد وفت read بزوية درد پازو او بچرب فرو دفت and instead

بیوستنة شد ر پانی بوزنة read پیوستنة شد،،،بوزنة of
excluding from—

to ترا همان پیش آید که زاهد را (1)
این مثل بدان آورده ام تا

سلامت برکنارست to از فتنه این زمانه (2)

دشمنی رایکی بود بسیار to چنانچه وکیل دریا (3)

and (4) to دمنه گفت مرا مثل ازین مقصود

Ain-i-Akbari, Vol III, pages 291-298.

مانیز چاردنسگاننم to دلاویز گفتار شاهی from

بدنها ازشیطان دانستن (1) excluding from

تا دارو نپزیرد to

هنگامه آراستن to برخی سادہ لوحان (2)

and (3) شگفت زار نیستادے دوربین ستم

to از عنایات بیغایت الهی Tuzuk Jahangiri—from
(as is in Matriculation Course,, 1912-13) بضغا مبدل گردید

Safar-namah, Shah Iran—From روز دوشنبة دوم ذیقعدہ
to اینهامی رقصیدند as in the Intermediate Course،
1913-14

Poetry-Diwan Hafiz (1) to (47) Intermediate
Course. 1912

Salman Saoji, Qasidas beginning with

(۱) اے سران ملک را شمشیر تو مالک رقاب

(۲) باد سحر گهی برائے تو جان دمد

(۳) بدل رسید سحر گاه در مقام حضور

(۴) منم امروز و بلے شب هجراں برسر

(۵) حور اگردیده بر این روضه کند روزے باز

Zahir Faryabi, Qasidas beginning with

(۱) شرح غم تو لذت شادي بجاں دهد

(۲) سپیده دم چوزند ابر خیمه در گلزار

(طلوع مدار...........زنار (omit the couplet

(۳) سپیده دم چو شدم محرم سراے سرور

(۴) چوں بر فلک طالیعة شب گشت آشکار

(ii) Grammar—مخزن الفوائد by M. H. Nasri, Chapters I-VII Mission Press, Allahabad

Repid Reading—Sear-ul- Mutaakhirin from

چوں گفتا جهانگیر از جهاں رفت to ذکرسلطنت ظهیرالدین محمد بابر پادشاه

excluding from (واز خضر بسط خواهند to ذکراحوال موتمن الدولة)

Students who offer Persian are required to have such a knowledge of the Etymology of the Arabic language as will enable them to explain all Arabic words and phrases which may occur in Text-books and in the books recommended for rapid reading in Persian.

NOTE—Persian words must be written in the Persian character.

(c) Sanskrit.

There shall be 3 papers: —

I.—*Prose:*—Dandin   Dashkumara-charita
        chapter VIII Vishruta charita (Bombay
        Sanskrit series pages 50—66)

II.—*Poetry*—Kalidasa : Raghuvansha, cantos
        IV & V with mallinth commentary.

Abhyyan Shakuntalam of Kalidas.

III—*Composition* & Unseen
        Grammar.

Macdonnell's Sanskrit Grammar for beginners.

Or Kale's Sanskrit Grammar.

Apte's Guide to Sanskrit Composition.

For the third paper, candidates are recommended
to familiarise themselves with the language and style
of the Epic period by reading through portions of
(a) Sankhshipt Ramayant(b) Sankhshipta Mahabharat.

NOTE.—Students should be taught to read these books by them-
selves with the help of a Sanskrit-English Dictionary.

General questions on Grammar shall be asked in
Paper I and one-third of the total number of marks
allotted to them.

NOTE.—Sanskrit must be written in the Devanagri character.

History

Indian History

PAPER 1.—

Section A.—From the Earliest Times to 1526.

Section B.—From 1526 to 1909.

1. V.A. Smith.—Oxford History of India.
2. Oswell—Sketches of the Rulers of India.

PAPER 2.—

Either A.—European History.

1. Grant—History of Europe. Book III
2. G. B.Smith—Scenes From European History. (Arnold).

Or B.—

English History

1. Robinson—Illustrated History of England.
2. Warner&Martin—Groundwork of English History.

Muslim History

PAPER 1.—

History of the Abbasides.

1. Ameer Ali—Short History of the Saracens, Chaps. 15th to 25th.
2. Sir William Muir—The Caliphate-Rise, Decline and Fall. Chaps-40th to 78th.

PAPER 2.—

History of the Ottomans upto 1878.

1. Lane Poole—Turkey.
2. Marriott—The Eastern Question. (Introduction and chaps. 1-12).
3. Hogarth—The Balkans.

Logic

There shall be two papers in Logic :—

PAPER I.—Deductive Logic.
PAPER II.—Inductive Logic.

DEDUCTIVE LOGIC

Definition, Scope and Use of Logic. General relation of Logic to other Sciences. Immediate and mediate knowledge. Reasoning in General. Matter and Form of Reasoning. Division of Logic into Deduction and Induction.

Deduction, its aim and scope.

Laws of Thought.

Words, Concept, and Term. Use of Names. The Distinction of terms. Denotation and Conotation of terms. Division and Definition. Description. Universe of Discourse. Various divisions of terms and their Significance.

Judgments and Propositions. Theory of Predication and Import of Proposition. Predic-

ables. Classifications of Propositions. Distribution of Terms. Quantity, Quality and Modality.

Diagrammatic Representation of Propositions Simplification of Propositions.

The Nature of Inference. Immediate and Mediate Inference. Deductive and Inductive.

Opposition of Proposition. Forms of Immediate Inference.

Mediate Inference. The Structure of the Syllogism. The canons, Figures and their Rules.

Moods. Reduction—Direct and Indirect. Hypothetical Disjunctive an and mixed Syllogisms. Dilemma. Euthymene, Sorites and Epicheiremas. Suppressed Syllogisms and Trains of Syllogism.

Fallacies in deductive Reasoning.

INDUCTIVE LOGIC

Definition. Scope and Use of Induction.

Observation and Experiment. Regulative Principles for Observation and Experiment. Advantage of Experiment over Observation. Classification and Nomenclature. Generalisation.

The Postulates of Induction. The Uniformity of Nature. The Law of Causation. Causes

and Conditions. Plurality of Conditions and Intermixture of Precepts.

Discovery and Proof.

The Inductive methods. Hypotheses; their Use and Function. Conditions of validity of an Hypothesis. Theory and Fact.

Deduction and Induction. Emperical Generalisations and Laws of Nature. The world as a Unitary System.

Generalisation and the General "idea. Abstraction.

Perfect and Imperfect; Complete and Incomplete, Scientific and Unscientific Induction. Enumerative Induction.

Analogy : Nature of Analogical Reasoning and its use. Analogy and Induction.

Explanation and its Limits. Scientific and Popular Explanation. Probability and its Eliminations.

Definition and its limits and Condition.

Classification: Natural and Artificial. Its conditions Its relation to Definitions and Divisions. Classification by Type. Errors in Definition. Classification and Division.

Fallacies in Inductive Reasoning.

The Relation of Induction to Deduction. Unity of the Inferential Process. Inductive and Deductive Sciences.

Mathematics.

There will be three papers in Mathematics. as follows

PAPER I.—

(a) Algebra.—

Remainder Theorem, Quadratic Equations: involving two or more unknown quantities, the theory of Quadratic Equations and of expressions of the second degree; Imaginary Expressions ; Arithmetical, Geometrical and Harmonic Progressions ; Permutations and Combinations; Theory of Indices and Logarithms, proof of Binomial theorem for a positive integral index and the use of Binomial and Exponential theorems for any index.

(b) Trigonometry.—

Including Solution of Triangles, and simple problems of inscribed, circumscribed and described circles.

PAPER II.—

(a) *Geometry.*—

Proportion and Similar Triangles.

If a staight time is drawn parallel to one side of a triangle, the other two sides are divided proportionally, and the converse.

If two triangles are equiangular, their corresponding sides are proportional ; and the converse.

If two triangles have one angle of the one equal to one angle of the other and the side about these equal angles proportional, the triangles are similar.

In any right angled triangle, the perpendicular to the hypotenuse from the opposite vertex divides the triangle into two triangles which are similar to the whole triangle and to each other.

The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle and likewise, the external besictor, externally.

The ratio of the areas of similar triangles is equal to the ratio of the squares on corresponding sides.

(b) *Geometry of solids.—*

Elementary properties of lines and planes, surfaces and volumes of parallelopipeds, right prisms, pyramids, circular cylinders, cones, spheres and spherical segments ; frusta of pyramids, cones and spheres with numerical applications.

(c) *Co-ordinate Geometry.—*

Systems of Co-ordinates, oblique rectangular and polar. The properties of the straight line, triangle and circle treated geometrically and analytically.

(d) *Differential Calculus.—*

Differentiation of simple functions.

PAPER III.—

Dynamics and Statics.—

Velocity, Composition of velocities, relative velocity ; accelleration, rectilinear motion under uniform accelleration, composition of accellerations, Newton's laws of motion ; rectilinear motion under gravity in a virtical, and down an inclined plane; motion of two masses connected by a string passing over a pulley ; definition and calculation of kinetic energy ; co-planer forces, parallel and non-

parallel forces and their composition; equilibrium of a body under three forces ; moments ; simple cases of centres of gravity ; friction ; work and power;Simple machines(lever, balance and system of pulleys).

Physics.

There shall be 2 written papers and a practical examination:—

PAPER I. — Mechanics, Heat and Light.

PAPER II. — Sound, Magnetism and Elec tricity.

Mechanics.—

Revision of previous work C. G. S. system of units. Units of force and work. Acceleration due to gravity. Difference between Mass and Weight. Definitions of inertia, momentum, force and energy. Atmospheric pressure. Bulk elasticity. Air Pump, water pump, siphon, force pump and the hydraulic press.

Heat.—

Revision of previous work. Thermometry. Coefficient of expansion of solids, liquids and gases. Boyle's and Charles's laws. Calorimetry. Effect of pressure on melting and boiling points. Vapour pressure. Hygrometry. Formation of

cloud, fog and dew. Conduction, Convection and Rediation of heat. Definition of mechanical equivalent of heat.

Light.—

Revision of previous work. Rotatory mirror. Multiple images formed by (a) two plane minors parallel to each other and at right angles (b) mirrors. Optical bench. Conjugate foci. Determination of the focal length of mirrors and lenses. Dispersion. Different kinds of spectra. Formation of a pure spectrum. Spectrometer. Fraunhofer's lines. Spectrum analysis. Fizean and Foucault's methods of determining the velocity of light. Photometry. Elementary ideas.

Sound.—

Elementary ideas abut S. H. M. and Wave motion. The production of sound by vibrating bodies and its transmission through air and other material media in longitudinal waves. The features of waves corresponding to loudness and pitch and experimental determination of the velocity of sound in air. Effect of temperature, pressure and humidity on the velocity of sound in air. Graphical representation of longitudinal wave motion. Principle of

superposition. Vibration of strings. Harmonics. Vibration of columns of air in open and closed pipes. Resonance Tube. Organ pipes. Determination of frequency by simple methods.

Magnetism.—

Properties of magnets. Magnetic induction. Definition of unit magnetic pole and magnetic moment. Terrestrial magnetism, dip and declination. Experimental study of the magnetic field, lines of force. The deflection and vibration magnatometr.

Electricity

The simple phenomena of eletrified bodies conduction and insulation. Induction. Law of inverse squares. Electric field, lines of force. Potential capacity and condensers. Electrophorus. Electroscopes. Production of electricity by frictional machines and Whimshurst machine.

Electric discharge. Electric current. Various types of voltaic cells. Magnetic effect and Galvanometers. Electrolysis. Definition of unit quantity of electricity. Electromotive force. Ohm's law. Volt, Ohm and Ampere. Wheatslone's bridge and Post office box. Heating effect of currents, Joule's law. Electro magnets Electromagnetic induction. Induction

coil. Simple account of Dynamo. Telegraph and Telephones.

Practical Course

1. Sliding Vernier Callipers :— determining the vernier constant and rapid reading.

2. Fortin's barometer (with vernier)

3. Systematic weighing (using the rider and method of oscillation)

4. Rapid reading of sensitive thermometers.

5. Density of regular solids by measurement and weighing.

6. Specific gravity of solids and liquids ; by
   (a) Specific gravity bottle.

   (b) Hydrostalic balance.

   (c) Nicholson's Hydrometer.

7. Parallelogram of forces.

8. Principle of Moments.

9. Simple Pendulum.

10. Boyle's Law.

11. Sp. Heat of a Solid (Lead Shot)

12. Sp. Heat of a Solid (Regnaults's Colorimeter)

13. Latent Heat of Steam.

14. Testing the Upper fixed point of a Thermometer, and Determination of Boiling Point of a liquid.

15. Latent Heat of Ice.

16. Velocity of sound by Resonance Tube.

17. Verification of the Laws of Reflection.

18. Determination of " u " with a glass plate.

19. Micrometer screw Gauge : (Mean Thickness of a knitting needle and of a glass slip)

20 Spherometer : Radius of Curvature of Concave or Convex Surfaces (Mirrors and lenses)

21 Focal length of a concave mirror : Parallax Method.

22. Focal length of a convex lens, Parallax Method (Optical Lever)

23. Verification of the formula $1/u$ plus $1/v$ is equal to $1/f$ for a convex lens.

24. Mapping the magnetic field of force.

25. Determination of Neutral Points in a magnetic field.

26. Comparison of Magnetic Moments : Deflection Magnetometer.

27. Resistance with a B. A. Bridge.

28. Determination of Resistance with a Tangent Galvanometer.

Chemistry.

The Intermediate Examination will consist of two papers and a practical examination.

First paper :—

Calculations and non-metals—40 marks.

Second paper :—

General Chemistry and metals—40 marks.

Practical examination —

Twenty marks.

	Minimum Pass marks.
Total of papers...	...
Practical ...	... 6

Theoretical :—

The course as for High School Examination together with the following :—

Distinction between physical and chemical change, condition effecting chemical change; solution, crystallisation, distillation ; precipitation, neutralisation.

Elementary and compound substances, mixtures, methods of distinguishing one from the other, the laws of definite and multiple proportion, the law of reciprocal proportion, equivalent weights, atom, molecule, vapour,

density, Avogadro's hypothesis, combination of gases by volume, the atomic theory, methods of determination of equivalent and atomic weights ; molecular weights, valency, the relation between equivalent and atomic weights, Dulong and Petit's law ; Mitscharlich's law of isomorphism.

Vapour pressure, diffusion, Graham's law of diffusion, calculation of gas volumes and results of simple gas analysis.

Chemical nomenclature, symbols, formulae and equations, calculations of easy nature.

Oxidation and reduction, formulation and classification of oxides.

Elementary ideas as to the nature of dissociation in gases and liquids, and of the ionic theory, electrolysis.

Elementary conceptions of catalysis. Outlines of the Periodic law studied from the elements prescribed in the course.

Systematic study of the following elements and compounds. Their occurrence in nature, usual method of preparation and chief properties with, as far as possible, proofs of the

composition of compounds:—

Hydrogen, oxygen, water, natural waters, hardness of water and methods of softening on a large scale usually employed, ozone, hydrogen peroxcide.

Nitrogen, the atmosphere, effects of animal and vegetable life upon its composition, the nitrogen cycle in nature, ammonia, nitric acid and nitrates, nitrous acid and nitrites, the oxides of nitrogen.

Carbon, carbon monoxide, carbon dioxide, carbonic acid and the carbonates, combustion, structure and luminosity of flames, coal gas, marsh gas, Davy safety lamp.

Chlorine, hydrochloric acid and chlorides, bleaching powder and the process of bleaching, oxides and oxyacids of chlorine.

Bromine and iodine, their hydro-acids and oxy-acids.

Sulphur, hydrogen sulphide, sulphur dioxide, sulphur trioxide, sulphuric acid and the sulphates, sulphurons acid and the sulphites.

phosphorous, hydrogen phosphide, phosphorous trioxide and pentoxide, phosphoric acids.

Silica and silicates, elementary outlines of the principles underlying the manufacture of glass, pottery and brick.

Sodium and potassium, their hydrates, chlorides, carbonates, nitrates, and sulphates.

Calcium, strontium, barium their oxides, peroxides, hydroxides, carbonates, sulphates, chlorides and nitrates.

Iron, the outlines of its metallurgy, steel, Cast iron, oxides of iron, ferrous and ferric sulphates and chlorides, ferrous ammonium sulphate.

Copper, outlines of its metallurgy, brass, oxides nitrates and sulphates of copper, chloride.

Zinc, its oxides, chloride, sulphate, carbonate.

Magnesium, its oxides, chloride, sulphate, carbonate, magnesium ammonium phosphate.

Aluminium, its oxides, chloride, sulphate, alum.

Lead, the outline of its metallurgy, its oxides, carbonate, nitrate, acetate, chloride, sulphate.

Tin, its oxides, chlorides, sulphides, solder, bronze.

Mercury, its oxides, chlorides, nitrates, sulphate, amalgams and sulphides.

Arsenic, hydrides, oxides, arsenious acid. sulphides, chlorides.

Antimony, hydride, oxides, antimony chloride, sulphide, type metal.

Bismath, oxides, chlorides, sulphide, nitrate.

2. *Practical Work :—*

Students must provide themselves with note-books wherein to keep dated record of their work, initialled by the instructor incharge of the practical classes. These note books shall be kept in the laboratory in charge of the instructor and the Principal of a college will be responsible for the production of these when demanded by the proper University authority.

(1) The cutting and bending of glass tubing, softening and boring corks.

(2) The preparation of simple apparatus involving the use of corks and tubes *e.g,* fitting up a wash bottle and gas generating apparatus.

(3) Purification of liquids and solids *e. g.* of water by distillation and salts by crystallisation.

(4) Solubility of gypsum, common salt or similar substances in water. Plotting a solubility curve for a salt such as potassium nitrate.

(5) Determination of the change in weight on beating a known weight of magnesim or aluminium or other subtances in air, derivation of emperical formula of the compound produced.

(6) Preparation and collection of the following gases on a small scale :— Hydrogen, oxygen nitrogen, carbon monoxide, carbon dioxide, ammonia, hydrochloric acid, nitric oxide, chlorine, sulphur dioxide, nitrous oxide, hydrogen sulphide, and a practical study of their chief properties.

(7) Preparation and purification of simple salts involving no special difficulty for example, zinc sulphate, calcium chloride from marble, sodium sulphate from sodium chloride, copper sulphate from brass and ferrous sulphate from iron sulphide.

(8) Simple volumetric estimation such as estimation of alkali, acids, and alkali carbonate and bicarbonates—use of indicators.

(9) Qualitative analysis of simple inorganic salts containing one acid and one basic particles from the above course

(10) Gravimetric estimation of iron.

There shall be a Supplementary Examination in Organic Chemistry for those students who intend to appear for the Competitive Examination of the Medical College, Lucknow.

The Examination will consist of one paper and one Practical Examination provisionally fixed, but the actual Course will be framed when the Medical College, Lucknow, prescribes the Course and the standard of the Competitive Examination.

Provisional Course

Exact copy of the Allahabad University Syllabus in Organic Chemistry for intermediate Examination of 1923, both in theoretical and practical.

General Biology.

These will be two papers and a Practical Examination.

I—Zoology

A.—Living and non-living matter. The distinctive properties of living matter or protoplasm and its chemical compoition. The structure and life-history of Amoeba as an

example of the Protozoa. A general conception of the structure and phenomena of the animal cell ; direct and indirect cell division. The union of cells to form tissues and the combination of tissues to form organs.

B.—The structure of Hydra as an example of the Metazoa, omitting the minute histology. The principle of the physiogical division of labour and the correlated differentiation of structure.

C.—The structure and life-history of an Indian Earth worm as an example of a segmented animal. The significance of the three primary germ-layers and the cœlom.

D.—The general characters of of Chordata.

E.—The general anatomy, histology and physiology of the various systems of organs in the Frog.

F.—An elementary of the anatomy and ostealogy of the Rabbit or other common Mammals.

G.—A general classification of the animal kingdom with the characteristics of the principal phyla.

H.—Reproduction, sexual and asexual; ova and spermatozoa ; cogenesis and sperma-

togenesis. The elementary facts of the ferti-
lisation and segmentation of the ovum, the
outlines of the development and darval history
of the Frog, the three primary germ-layers and
the organs derived from them.

II.—Botany

N. B —Candidates will be required to pass in the theoretical
part of each Science subject.

A.—The structure and germination of seeds,
the morphology of the root, stem and leaf. The
chief types of floral structures. The chief types
of infloresence and the common types of fruits.

B.—The parts of a typical vegetable cell,
the cell content, and their micro-chemical
reactions, the division of cells, the chief types of
plant tissues. A comparative study of the
internal structure of the root, stem and leaf of
the Angiosperms. The structure of the repro-
ductive organs of the Angiosperms.

C.—The structure of Bacillus subtilis and
the modes of nutrition among Bacteria

D.—The structure, physiology and life-
histories of Spirogyra and Mucor.

E.—The structure and life-histories of :—
A fern and phenomenon of Alteration of
Generations.

F.—The life-history of Angiosperms.

G.—An outline of the classification of the vegetable kingdom to illustrate grades of structure and method of reproduction.

H.—Elementary plant physiology ; stability of the plant body ; the usual constituents of plant food ; assimilation ; transpiration ; respiration; the main facts about growth; the chief types of movements ; Reproduction, vegetative and sexual; cross and self pollination and dissemination of seeds.

Practical Work

Students are expected to keep a record of all practical work in a special laboratory sketch book which will be liable to examination by the University Inspectors and Examiners. The laboratory Instructors should sign the result of each day's practical work.

A.—The microscopical study of *Amoeba* and *Hydra*, the study of *Hydra* by means of transverse and longitudinal sections.

The general dissection of the Earthworm and Frog ; a microscopical study of the chief animal tissues from fresh or prepared preparations of muscle, nerve, cartilage, bone, blood and connective tissue.   The miscroscopical

study of the Earthworm by means of fresh preparation and transverse sections; a micro-scopical examination of the kidney, liver, spinal cord, stomach, ovary and testis of the Frog. The skeleton of the Frog.

The osteology of the Rabbit and the dissec-tion of the alimentary, vascular, and reproduc-tive systems of that animal.

B.—The dissection of plants and parts of plants, the preparation, simple staining, and study of microscopical sections of plants. A practical study by microscopical examination and otherwise of Bacteria, Yeast, Spirogyra, Ulothrix Mucor, a Fern, and the vegetative and reproductive organs of Angiosperms treated in an elementary manner.

The description of a flowering plant and its parts in semi-technical language.

(Where fresh material cannot be obtained recourse should be had to prepared specimens.)

Text-books suggested :—

PARKER : Lessons in Elementary Biology (Mac-millan).

PARKER and PARKER : Elementary Course of Practical Zoology (Macmillian).

J. W. OLIVER : Elementary Botany (Blackie & Son).

Urdu

(a) For students whose mother tongue is Urdu

PAPER I:—

منتخبات میر ۔۔۔ انجمن ترقی اردو

شمع و شاعر ۔۔۔ ڈاکٹر سر محمد اقبال

عود ہندی ۔۔۔ غالب

PAPER II:—

Development of مرثیه in Urdu

Recommended

موازنه شبلی ۔۔۔ المیزان ۔۔۔ چودهری نظیرالحسن

(b) For those whose mother tongue is not Urdu :

آئنیرالوقت ۔۔۔ شمس العلما ڈاکٹر مولوی نذیر احمد

منتخبات مجموعه نظام حالی

N.B.—Students whose mother tongue is not Urdu will have a Viva Voce Examination also.

Theology

(a) Sunni Theology

۱ ۔۔ تاریخ ۔۔ آغاز اسلام

۲ ۔۔ فقه ۔۔ جامع صغیر۔

۳ ۔۔ اخلاق ۔۔ کتاب الحقوق ۔ کتاب الصدق

(b) Shia Theology

۱ ۔۔ ترجمه اردو عقائد ابن بابویه قمی ۔۔ کل

۲ ۔۔ کتاب النکاح از جامعه عباسی یا از شرایع الاسلام ۔ کل

۳ ۔۔ تاریخ الائمه از علامه بہاء الدین عاملی ۔ کل

(e) Course of Muslim History in Place of Theology
for Non-Muslim Students only

Text Book prescribed :—

1. Moors in Spain by Stanley Lane-Poole
(Story of the Nations' Series.)

Or

Urdu Translation کار نامهٔ مور

Reference:— خلافت اندلس by Nawab Zulqadar Jang

2. Spanish Islam by Dozy and Stokes.

PART III

The examination will be held in Chemistry only

Chemistry

THEORETICAL EXAMINATION

Inorganic.—

The Intermediate Examination of the University in Chemistry

Organic.—

The modes of occurrence, preparation and general properties of the following compounds :—

The commoun saturated and unsaturated hydro-carbons and their haloids and cyanogen derivatives.

The common monatomic, diatomic and triatomic saturated alcohols.

The aldehydes and ketones with their oximes. The ethers.

The monobasic and dibasic saturated fatty acids.

The ethereal salts of the saturated alcohols, fats, soaps and saponification.

The amines and amides of saturated alcohols and acids.

Acids, anhydrides and haloid derivatives.

Starch, sugar and processes of fermentation.

Lactic acid, urea.

Benzene, the differences between aromatic and fatty compounds.

Halogen derivatives of benzene, sulphonic acids phenol.

Benzoic acid, aniline, diazo compounds.

PRACTICAL EXAMINATION

A.—General.

Candidates will be required (*a*) to show tha they are able to perform the test and carry out the processes mentioned below ; (*b*) two write a clear account of the work performed and the nature of the processes employed and the steps by which the results have been arrived at ; (*c*) to show familiarity with the apparatus and material necessary for distillation, drying, weighing, solution, filtration, etc.

B.—Inorganic.—

1. Crystallisation and the determination of the water of crystallisation in a hydrated salt.

2. Qualitative analysis of a substance containing not more than one base and one acid.

3. Elementary volumetric analysis such as titration of acid, and alkalis, estimation of iron by permanganate and bichromates, estimation of chlorine.

C.—Organic.

1. Simple organic preparations, determination of melting and boiling points, fractional distillation.

2. Qualitative detection of hydrogen, nitrogen, sulphur and chlorine in organic compounds.

3. Tests for and reactions of methyl and ethyl alcohols, glucose, cane sugar, grape sugar, phenol, salicylic acid, formates, acetates, oxalates, cyanides, tartrates and urea.

B.A. & B. Sc. EXAMINATIONS (ORDINARY)

English

PART I

The Examination in English will comprise two parts. The First part will be (1) an English Essay upon a certain selected subject, (2) a general paper, and (3) a *viva-voce*.

PART II

PAPER I.—Prose.

The following text-books are prescribed in prose :—

1. Modern Essays—Page and Rieu(O.U.Press)
2. English Poets and Comic Writers—Hazlitt
3. Far from the Madding Crowd—Hardy.
4. Charles Dickens—G. K. Chesterton.
5. Caesar and Cleopatra—G. B. Shaw.

PAPER II.—Poetry.

1. Coriolanus.
2. Merchant of Venice.
3. Wordsworth, Byron, Keats, and Tennyson (Selected) Kays . Pub.
4. Modern Poetry(Poems of To-day—First and Second Series Sidgwick and Jackson— selected).

Besides an accurate knowledge of the above texts candidates will be expected to acquire a sound general knowledge of all authors concerned as to the aim and scope of their work, and the significance of its contribution to English Literature. Lectures will be arranged as distinct from the necessary text lectures for the guidance of candidates. But candidates will be expected to furnish a certain amount of supplementary reading themselves, and are advised to make a close investigation of the Library at an early stage. Examination papers will be so managed as to test a candidate's adherence to this recommendation.

NOTE.—For students whose main subject shall not be English:—

Candidates for whom English is an Allied Subject shall be allowed to take up one of the papers for B. A. Honours as an alternative for the above two papers, if advised by the department mainly concerned.

Classical Languages

(a) Arabic

Prescribed Course :—

Diwan Hamasa—

باب الحماسة First half up to – قال مساور
سائل تميماً هل رفيت

باب الادب First half up to –قال حاتم الطائي
وما إنا بالساعي

Abul Fida, History Vol. 1 from birth of Muhammad to the end; with questions on the subject matter.

Arrangement of papers.—

1st PAPER—Poetry.

2nd PAPER.—PROSE; Historical questions; unseens.

3rd PAPER.—Grammar and translation into Arabic.

Grammars recommended :—

Wright — Arabic Grammar —تهذيب النحو

(and see under High School Examination)

(b) Persian

1ST PAPER.—
Text.

2ND PAPER.—
Rapid Reading.
History of Literature.
Grammar.

3RD PAPER.—
Composition.

Prescribed Course—

(i) Text—*Prose.*—

Tarjuma Tarikh Tabri, Vol. III, pages 292-296
گفتار در بادشاهي شاهپور ذوالاكتاف

Akhlaq Jalali— تهذيب اخلاق first five lum'as
Seh Nasr Zuhoori نثر اول
Insha-i-Abul Fazl.

(۱) خطاب حضرت شاهنشاهي به شاه عباس

(۲) نامه حضرت شاهنشاهي بشرفاے مكه

(۳) نامه حضرت شاهنشاهي بداڤايان فرنگ

Ain-i-Akbari—
آئين كورنش و تسليم و آئين دربار و
آئين آموزش و آئين جشن آرائي و آئين وزن مقدس
و عرفي و آئين رهنمونی قافيه سپهان and up to the end of
(یا ازلی الظهور excluding poems of Faizi from
to دل خرسند بيا and رباعيات فيضي)

Ruqaat Yaghma beginning with

(۱) نامه كوتاه جامه كه خامه بلند هنكامه

(۲) بامدادان كه دربارش دربان

(۳) خطر امسال ازين مرگهاے بے هنگام

(۴) پس از پدرودے و آهنگ كرمان

(۵) روز دلقرش كه يكوے تو

(۶) خاكساران قوازا امردزم از آغاز يام

(۷) سركار سا سانرا بنده ام

Tarikh Malcolm—Vol, I, pages 38—44, from
سوب افسانه هندوستان شد to هرمز ابن نرسي هفت

Peotry—
Khaqani—Qasaid beginning with
(1) دل من پير تعليم ست و من طفل زبان دانش
up to كنون صد قلسفي قلس نيوزد پيش اسكانش

نه چون جبییال ...... خانانش (i) excluding the couplets

و تعلیم پاک — آبدستانش (iii) و نماز مرده ... بیاپانش (ii)

زمین دایه ... بستانش (v) and , میانے ... جانش سگ (iv)

صبحدم چون کله بندد آه درد اسلی من (2)

و چون در ... دامي من (i) excluding couplets

گرچه ... استهزاي من (iii) and چشمه صلب ... اجزاي من (ii)

عیدست و بیش از صبحدم مژده بشمار آمده (3)

سنت عشاق چیست برگ عدم ساختن (4)

Anwari—

Qasidas beginning with

(۱) اے قاعده تازه زدست تو کرم را

(۲) جرم خورشید چو از حوت درآید به حمل

Urfi—

Qasidas beginning with

(۱) اقبال کرم مي گزد ارباب هم را

(۲) سپیده دم چو زدم آستین بشمح شعور

(۳) دل من باغبان عشق و حیراني گلستانش
(اگر طفل دام ... بستانش omit)

(۳) چهره پرداز جهان رخت کشد چون به حمل

(۵) اے مرتفع ز قسمت ذات تو شان علم

(۶) صبحدم چون درد مد دل صور شبرو زاے من
(شاهد عصمت ... لبهاے من omit)

(۷) عادت عشاق چیست مجلس غم داشتن

Qaani—

Qasidas beginning with

(۱) بگردون تیرہ ابرے بامدادان بر شد از دریا

up to الا زاں پس سر برآوردہ ز حسنت جامۂ

(۲) دوش بر گردوں بسے تاباں شہاب آمد پدید

(۳) ساقی بدہ رطل گراں زاں مے کہ دھقاں پرورد

(۴) کشودی زلف قبر آگیں جہاں راقیرواں کردی

(۵) بنفشہ رستہ از زمیں بہ طوف جویُبا رہا

Khusru—Ghazals—

(۱) اے زخیال ما بروں در تو خیال کے رسد

(۲) جاںزتن بردی و درجانی ہنوز

(۳) صدہ پندم کہ من درسینۂ سودائے دگر دارم

(۳) آئیں تو دل بردن است اپ چشم خلقے سوئے تو

(۵) اے چہرہ زیبائے تو رشک بتان آذری

Urfi—Ghazals—

(۱) دلم بقبلہ اسلام مائل افتادست

(۲) حرم پویاں درے رامی پرستند

(۳) درچمن حوروشان انجمنے ساختہ اند

(۴) عاشقان گر بدل از دوست غبارے دارند

(۵) خوش در خورست حسرت تو یا گزیستن

Nazeeri—Ghazals—

(۱) ترا یکعبہ مرا کار بادل افتادست

(۲) دوش بر سوز دل و سینۂ بہاتم دادند

(۳) کنم با بادہ بد مستی کہ سودائے دگر دارم

(۳) بسے الطاف احسان کرد حیرانی چو دید ازمن

(۵) بہ تسبیح و صلا کردہ ام میقاتہ آرائی

Saeb—Ghazal—

(۱) سهل مشمر همت پیران یا تدبیر را
بر نمی گردد ... شیر را (i) [excluding the couplets

[عقل دور... طفل شیر را (ii) and

(۲) به دنیا ساختم مشغول چشم روشن دل را
(۳) به نامرادے ما عشق مائل افتادست
(۴) قدح لبریز چوں شد از شراب ناب می لرزد
(۵) آنکه منع من مقدور زصهبا میکرد

Sikandar Namah—

جهاں گرچه آرام گاهے خوش ست from
چو صبحم دماغ دو مغزی دهد to

Shah Namah, Vol. I, pages 182—185.

چوازکوه بفروخت گیتی فروز from لشکر آراستن تورانیان و ایرانیاں
سوارے سر افراز و کند آروست to

(ii) Grammar مخزن‌الفوائد M. H. Nasiri, complete
(Mission Press, Allahabad.)

NOTE—Thorough knowledge of Persian Grammar is
expected.

Rapid Reading— تذکره دولت شاه سمرقندی First 5
Tabqas.

NOTE—A general sketch of the History of Literature with
reference to the authors prescribed in the text is particularly
expected.

Students who offer Persian are required to have
such a knowledge of the Etymology of the Arabic
language as will enable them to explain all Arabic
words and phrases which may occur in the Text-books
and in the books recommended for rapid reading in
Persian.

NOTE.—Persian words must be written in the Persian character.

Sanskrit

There shall be three papers in B.A. Pass :—

1st PAPER—Poetry and Drama.

2nd PAPER—Prose and Prosody.

3rd PAPER—Unseen and Composition.

1st PAPER—Kiratarjuniya. I, II Venisankar.

2nd PAPER *Either* (a) 1. Kaadambari—Ketha-mukh prakran (Bombay Sanskrit series pp 1—49).

(2) Kanyadersha—Sandin gees I and IV—Edited by M. Rangaa Charya, Madras.

The sections prescribed are those dealing with Rite and Dosha.

or (b) Prashastis Nos. 1, 13, 14 (1st part), 17, 18, 33, 35, 37, 38 and 49 as contained in Carpas Inscriptionum Indicasum, Vol. III only for candidates offering Anecient Indian History).

or (c) Taska samgrah with Dipiker (only for candidates offering Philosophy).

PAPER III—Composition and Unseens. For unseens candidates are recommended to familiarise themselves with the language and style of the Epic and classical periods by reading thorough portions of the Sankhshipta Mahabharat the Sankhshipta Rama-yana, Uttas Ram Chasite and the Dramas of Kalidas.

(Students should be taught to study these books themselves with the help of a Sanskrit Dictionary).

NOTE.—General questions on Grammar shall be set in papers I while questions on the History of Sanskrit Kanya—Litereture shall be distributed over all the papers.

Grammar—Kale's or Kathorin's Higher Sanskrit Grammar.

History of Sanskrit Litrature—by Weber or Macdonell.

Mathematics.

1ST. PAPER.—

(a) *Algebra.*—

Binomial and Exponential theorems; Convergence and Divergence of Infinite Series ; Simple continued fractions, partial fractions and Determinants.

(b) *Trigonometry.*—

Inverse Trigonometrical functions, De Moivre's theorem, Summation of Trigonometrical series, hyperbolic functions and expansions of Trigonometrical functions.

(c) *Analytical Geometry.*—

Parabola, Ellipse and Hyperbola.

General Equation of the 2nd degree.

2ND PAPER. —

(a) *Differential Calculus.*—

Differentiation, successive differentiation, development of functions, Indeterminate forms, Pontial differential Coefficients, Maxima and Minima for one variable; Tangents and Normals to curves, Asymptotes, multiple points on Curves, Envelopes, points of inflexion, Radius of Curvature, Evolutes and Curve tracing.

(b) *Integral Calculus.*—

General methods of integration, Standard forms, integration by parts; formulae of reduction, Rectification of plane curves and quadrature.

(e) *Differential Equations.*—

Equations of the first order in simple forms; Linear Equations of any order with constant coefficients.

3RD PAPER.—

(a) *Statics.*—

General conditions of equilibrium of a particle and of a rigid body under the action of forces in one plane; the principle of virtual work, simple machines friction, Centres of gravity, and Hook's law.

(b) *Kinetics of a particle.*—

Velocity and acceleration, Newtion's laws of motion; Work and Energy; Rectilinear motion,

projectiles in a vacuum; circular and harmonic motion ; Impact. Simple and cycloidal pendulum.

(c) *Hydrostatics.*—

Fluid pressure ; pressure on immersed surfaces, conditions of equilibrium of a floating body ; Specific gravity ; property of gases ; machines depending upon fluid pressure.

Philosophy

There shall be two papers.

1st PAPER.—Psychology.

2ND PAPER.—Ethics.

Psychology.

I.—The Problem, Data and Methods of Psychology. The Relation of Psychology to Logic, Ethics and Metaphysics. Psychology as a Natural Science. The Branches of Psychology.

II.—Body and Mind. General Nature of their connection. The Structure and Functions of the Nervous System. The Localisation of Functions in the Hemispheres. The Hyposthesis of Psycho-physical Parallelism. Monistic Hypotheses—Spiritualistic and Matrialisitic.

III.—Continuity of Consciousness. The psychological " Law of Relativity ". Focus and margin of Consciousness. Attention. Span of attention. Varieties

of attention. Subconscious Processes. Unconscious Processes. Learning by experience. Three inseparable factors of mental life. Activity or conation. Interest. Experience of Activity. Feeling. Pleasure and pain. Knowing. Simple apprehension and Judgment. Relation of Kowing, feeling and activity with one an other. Different 'levels' of mental development.

IV.—Sensation. Sensation and Stimulus. Presentative and Affective Elements in Sensation. Essential Aspects of Sensation. Organic Sensations. Varieties and Characteristics of Organic Sensations. Special Sensations. Their general characteristics and their Neural basis. Taste. Smell. Touch. Kinaesthetic. Temperaoure. Hearing.

Structure of the Ear and Analysis of Sound sensation.

Sight. Structure of the Eye. Retinal Image. Binocular Vision. Total and Partial Colour Blindness. Positive and Negative after-images.

Psychophysical problems connected with Sensatoins. Weber-Fechner Law.

V.—Nature and Attributes of Percepts.

Comparison of Sensations and Percepts. Perceptual synthesis and its conditions. Recognition ;

Discrimination and Intigration,. Apperception and Preperception.

Perception of the Blind. Factors is Space Perception. Perception of time. The External world and the Self on Perceptual level.

VI.—Memory. Retention. Reproduction—Partial and Total. Suggestion and Association. Types of Memory. Contrast of Percepts and Memory Image. Law of Association.

VII.—Imagination: Its relation to Memory.' Types of Imagination. Image on the field of darkness. Hallucination, Illusion and Dreams. Theories regarding the Physiological Accompaniment of Memory and Imagination. Difference between Image and Idea. Generic Image. Trains of Ideas. Thought as Analytico-Synthectic Process. Comparison and discrimination. Language and Conception. Natural Signs. Conventional Language. Reasoning. Ideal Constructions.

VIII.—Feelings and Feeling of Tone. Forms of Feeling Tone. Feeling Tone of Organic and Special Sensations. Feeling Ton and the Duration, Intensity and Extensity of Sensations. Feeling Tone and Ideational Processes. Elementary Feelings. Classification of Feelings, Aesthetic, Social, Ethical and Religious. Feeling Tone and Activity. Neutrality of Feeling.

IX.—General Nature of Emotion. Emotion and
Organic Sensations. Emotion and its Expression.
James'—Lang Theory. Relation to Feeling Tone and
Conation. Sentiment, Emotion, Moods. Analysis
of Typical Emotions.

X.—Range of Conative Phenomena. Different
Views of Conation. The Origin and Growth of
Volitional Process. Random and Reflex Movements
Conscious Reflexes. Sensorymotor and Ideomotor
Actions. Instinctive Movements. Nature and Origin
of Instinct. General Relation of Instintive Impulse
to Volition. Desire and Aversion. Desire and
Motive. Habit and volition. Simple and Complex
Action, Motor Tendency of Ideas. Deliberation and
Choice. Resolution. Voluntary Decision. Formation
of a Decision. Volition and Bodily Activity. Involun-
tary Action. Fixed Ideas. Attention ond volition.
Habit and Conduct. Self Control, Character, Freedom.

The Self. Meaning of the Self. Personal
Identity. Diseases of the Self. Relation of consciou-
sness to the Self.

Ethics.

1. Definition of the problem of Ethics : The
Scope of Ethics. Relation to Philosophy, Psychology,
Socialogy. Aesthetics, a Religion and Casuistry. The
subject matter of Ethics. The Nature of Moral
Judgment.

2. Ethical Value. The meanings of Good and Bad, Right and Wrong. Virtue and Vice, Duty, Merit and Responsibility. Subjectively Right Action, Objectively Right Action and their Obligatoriness. Moral and Immoral Acts. The Nature and object of Moral Judgment.

Psychology and the Moral Self Intrinsic and Extrinsic value. Distinctions between Want, Appetite, Desire, Wish, Will and Act. The Meaning of Purpose. Will and Character. Motive and Intention. Character and Conduct. Individual and Circumstances. The Universe of Desire. The Conflict of Desires. Choice and Deliberation. Freedom of the Will. Causation and Ethics. Libertairanism, Determinism and Self-Determinism. Responsibility.

4. Naturalistic Theories regarding the Nature of Ultimate Good or Goods. Psychological Hedonism. Pleasure and Happiness. Qualitative Difference of Pleasures. Egoistic Hedonistic Calculus.

5. Theories regarding the Ultimate Good as Self Conquest.—Cynisim, Stoicism. The Ultimate Good as Good will. Duty as Criterion.

6. Theories of Ultimate Good as Human rogress and as Self Realisation.

7. Theories of Moral Faculty. Intutionism Conscience. Kant's Rationalism. Moral Sense Theory

New Intutionism. Criteria of Moral Conduct according to these theories.

8. The Moral Ideal. Problem Of the Plurality of Goods. Higher and Lower Goods. Commensurability of Goods. Determination of Intrinsic Goods. Intrinsic Good as Absolute and Relative to man. Personal Affections. Aesthetic Enjoyments and knowledge as Goods. Moral Character. Appreciation of Moral or Mental Qualities. Appreciation of Corporeal Beauty. Their comparison. Appreciation of Moral Qualities with that of Corporeal Beauty Virtues, their Classification. Positive Evils. Love or Admiration or enjoyment of what is Evil or Ugly. Hatred or Contempt of what is Good and Beautiful. Consciousness of intense Pain. Mixed Goods. Mixed Evils. Value of Parts of a Whole. Value of a whole on the whole and as a whole. Heaven and Utopias.

9. Religion and Morality. Non Ethical Religions. Non-Religious Ethics, Ethics and Theism. Ethics and Immortality. The Absolute Good.

10. Ethical significance of Punishment and Reward. Theories of Punishment—Retributive, Deterrent and Reformatoro.

NOTE.—Students for whom Philosophy is an allied subject shall be, if advised by the department concerned, allowed to take up one or two papers for B. A. (Honours) as an alternative to one or both the papers mentioned above.

Economics

There will be two papers. The following syllabus is prescribed:—

1st Paper.—

Elementary Economic Geography of India.—

The Physical features of India. Soil erosion and alluvial deposits. Soils and climates. Distribution of raw materials and occupations. Density of population. Rural economy. Relations of town and country; interchange of products. Towns as commercial and cultural centres.

Distribution of Industries. Distinction between Extractive and Manufacturing (Primary and Secondary) industries. Mining Forestry, Fisheries. The Principal Manufactring industries. Dependence. on transportation and storage.

Transportation.—

Rivers, roads, canals, railways. Ports aud Harbours Ocean navigation. Trade routes. The principal commodities of commerce and their distribution. Short and long distance trade. Growth of towns. Absorption of rural industries; complementary growth of commercial farming.

Graphs.—

Ordinates and abscissae; nature and use of graph paper. Plotting of curves of prices and other simple statics.

Commercial Arithmetic.—

Calculation of percentages, ex-changes, interest, discount, present value, commissions, dividends. Income and Expenditure Accounts (Cash-Book.) Debtor and Creditor Accounts (Ledger). Capital and Stock Accounts. Balance-sheets. Measures of length and area. Calculation of simple examples illustrating Index Numbers.

Introductory.—

Subject matter of the Science. Its divisions and their interdependence. Economics a part of Sociology.

Methods.—

Observation, induction, deduction, and verification, as applied in economic science. Schedules and curves. Statistical methods.

Simple Definitions.— e. g.,

Wealth, Labour, Exchange, Money, Price.

Consumption.—

Wants. Origin of new wants and interdependence of activities. Definitions of total and marginal utility. Law of diminishing utility. Gain of utility by exchange. Dependence of utility on time and place.

Law of Demand.—

Demand schedules and curves. Elasticity of demand. Consumer's surplus. Fashions and customs

with their effect on demand. Scale of wants and Family Budgets.

Exchange.—

Theory of barter. Conditions of gain of utility by exchange. Definition of a market. Extent of the market.

Money.—

Functions. Materials and their necessary qualities. Kinds of metallic money: standard and token. Minting, Monometallism. Bimetallism. Paper currency. Gresham's Law. Relation of circulation to prices. Metallic and paper currency of India. History since 1870. Paper Currency Reserve. Profits of coinage.

Banking.—

The business of banks and the use of cheques. Clearing houses of London, Calcutta and Bombay (as in Memorandum on Banking of the Director of Statistics). Creation of credit. Indian Banking. Organisation of credit in India. Need of connecting various money markets.

Prices in organised markets.—

Factory, wholesale and retail prices. Price fluctuations. Their relation to the inflation of credit. Index numbers. Effects of quick communication and the publication of statistics (of crops, etc). Influence

of speculation ; anticipation and future bargains. Dealers' and speculators methods. Distinction between gambling and speculation.

Mechanism of Foreign Exchanges.—

Bills of Exchange. Mint Par. Exchange quotations. The Exchange Banks. Gold Standard Reserve. Council Bills and "Reverse Councils."

2ND PAPER.—

Production.—

The factors and agents of production--land labour, capital, and organisation (managemen and enterprise'. Combination of the factors in varying proportions. Law of diminishing returns (in terms of produce). Law of increasing expenses and of increasing real costs. Principle of substitution.

Land.—

Its qualities. Space. Use of natural resources. Fertility. Sources of power. Climate.

Agriculture.

Various kinds of organisation. Different land tenures. Zamindari and Roytwari systems. Present conditions. Improved methods of cultivation. Disposal of the products of agriculture. Geographical redistribution of crops according to most favourable locality.

Estate Economies.—

Permanent improvements of land: roads, wells, tanks and irrigation schemes, drainage, soils, farm buildings, and fences. Consolidation of holdings. Improvements of seeds of cultivation and rotations, and of breeds of draft cattle and milch cows. Creation of fuel and timber reserves, orchards, and cattle-farms.

Estate management.—

The landlord's work as organiser, teacher and director of his tenants. The finance of estate development, and business of management.

Co-operation.—

Agricultural and urban ; the theory and organisation of credit, distributive, {and purchasing societies. Co-operative production : its advantages and its weaknesses.

Labour.—

Distinctive qualities. Skilled and unskilled. Division of labour. Conditions of efficiency of labour. Influence of social customs.

Capital.—

Conditions of accumulation of capital. Fixed and circulating capital, Economic characteristics of machinery. Deterioration of capital goods. Depreciation of value ; obsolescence. Sinking Funds. Repairs. Insurance.

Organisation of Production.—

Large and small scale production. Advantages and limitations of each. Relation to division of labour, machinery and plant, extent of the market, and cost of transportation. Supply schedules and long period cost of production curves. Laws of increasing returns and of decreasing costs. Constant returns and constant costs. Decreasing costs due to inventions and to specialisation in the use of the factors of production. Types of organisation of the agents of production. Localisation of industries. Utilisation of bye-products.

Balancing of Supply and Demand.—

Temporary equilibrium of supply and demand. Short and long periods. Equilibrium of normal demand and supply.

Distribution.—

Balance of demand and supply for the factors of production. The principle of substitution. Equalisation of their marginal productivity as between the individual businesses of a single industry, and between different industries, in short and long periods. Mobility of the factors of production. Effects of introducing new methods, *e.g.*, new processes, machinery, etc.

Rent.—

Gross and net rent. The law of rent.
Economic rent. Various forces determining it.
Fertility and situations. Rent does not deter-
mine price. The extensive and intensive margins
of cultivation. Expansion and contraction of
cultivation. Effects of improvements in agri-
culture and transportation on rents. The
land revenue in India.

Interest.—

Demand for and supply of capital. Diffe-
rences between short and long term invest-
ments. The prevailing rate of interest depen-
dent upon the amount of capital set free
for fresh investment in the period considered
and on the extent to which it is mobilised.
Mobility of capital between localities, between
industries, and from less to more specialised
forms of fixed capital. Gross and net interest.
Tendency to equal returns on equally risky
investments. The rate of return and the rate
of interest.

Quasi-Rent.—

Differences between the actual return on
fixed capital (*i.e.*, quasi-rent) and the continuing
cost of the fixed capital (*i. e.* interest.)

Wages and the Population Question.—

General conditions affecting demand for and supply of labour. Birth and death rates. Positive and preventive checks. Indian famines and relief measures. Health and sanitation. Loss of labourer's time from sickness. Early marriage and the joint family. Long period equilibrium between marginal net product and cost of maintenance. Real and nominal wages. Apparent differences in wages. Mobility of labour. Migrations in India. Differences of wages in short period. Their equalisation. Time and piece wages. Trade Unions (as in Marshall's "Economics of Industry").

Profits.—

Normal Profits, as the reward of management and risk taking, and Surplus Profits as the result of special advantages in time and place, and legal rights. Losses.

Monopolies.—

Definitions. Determination of monopoly price in actual practice. Taxation by means of fiscal monopoly.

NOTE.—The diagramatic treatment of Maximum Monopoly Revenue. the problems of Monopolistic Combinations. Unfair Competition and price discrimination, and the effects of taxing monopolies at fixed amount and in proportion to output, and Problems of Government control are no longer included in this Course)

International Trade.—

Brief statement of conditions under which international trade arises, how it differs from internal trade and the importance of each. Theory of free trade, and the conditions under which protection is desirable. Foreign trade of India. Balance of trade Home charges.

Taxation.—

Canons of Taxation (as in Bastable) illustrated by Indian taxes. Direct and indirect taxation The incidence of land revenue, income-tax and customs duties. The Indian tax system. Central Provincial and Municipal taxation. Unearned increments and succession duties.

The National Income.—

Causes of national wealth, and progress.

Candidates are expected to be able to calculate percentage and the ratios of Foreign Exchanges.

N.B.—Students are recommended to visit factories and workshops, and to study the working of Co-operative Credit Societies, and of local cottage industries.

Prescribed books :

1st Year—

MORRISON.—New Geogragphy of the Indian Empire.

CLOUSTON.—Lessons on Indian Agriculture.

CHAPMAN. -Elementary Economics.

MORELAND.—Introduction of Economics for Indian Students.

2nd Year—

MARSHALL.—Elements of the Economics of Industry.

CARVER.—Distribution of Wealth.

BANERJEA.—Study of Indian Economics.

JEVONS.—Money, Banking and Exchange in India.

The following books may be consulted :—

MORRISN : Indian Industrial Organisation.

MARSHALL : Principles of Economics.

WITHERS : The meaning of Money. (Smith and Elder).

PALGRAVE : Dictionary of Political Economy.

Imperial Gazetteer, Vol, III, Vol. IV, Chapters 6, 7, and 16.

The Indian Year Book (Current number.)

The Statistical Abstract for British India (presented to the House of Parliament, published by His Majesty's Stationery Office, London). (" India in 1902," etc.)

The Annual Report on the Moral and Material Progress of India

History.

There will be two papers.

1st Paper.—

Indian History (1000 to 1857 A. D.)

Recommended:—

1. LANE-POOLE : Madiaeval India·
2. KENNEDY : History of the Great Moguls.
3. LYALL : Rise and Expansion of the British Power in India.
4. ROBERTS : Historical Geography of India (Part 1)

To be consulted:—

1. LANE-POOLE : Baber.
2. LANE-POOLE : Aurangzeb.
3. TROTTER : Warren Hastings.
4. HUNTER : Dalhousie.

2nd Paper.—

Either (*A.*)

Modern European and English History (European History 1453 to 1878, English History 1485 to 1901)

Recommended :—

1. LODGE : Modern Europe.
2. ROBINSON : History of Western Europe.
3. TOUT : Advanced History of England Book 3.

To be consulted:—

1. ROBINSON AND BEARD : Development of Modern Europe.
2. REDDAWAY : Frederick the Great.
3. O'CONNER–Morris : Napoleon.
4. OMAN : Short History of England.
5. BEESLY : Elizabeth.
6. ROSEBERY : Pitt.

Or (B.)

Muslim History. Omayyeds and Abbasides. (Same as for B. A. Honours)

Physics.

The Examination in Physics will comprise two papers in theory and a Practical Examination.

1ST PAPER.—Proprties of matter, Heat and Sound.

2ND PAPER : Optics, Magentism and Electricity.

The following syllabus indicates the scope of works in different branches:—

I.—Properties of matters.—

Matter, Mass, Weight and Units. Difinition of Moment of Inertia and its calculation in simple cases, e.g. thin rod, rectangular and

circular plates, rings, sphere about any axis and a cylinder about axis perpendicular to or parallel to axis of cylinder. Gravitation including Determination of the mean density of the earth and the constant of Gravitation. Difinitions of the various moduli of Elasticity, Hooke's Law and determination of Young's Modulus. Boyle's Law. Conservation of energy. S. H. M. Simple and compound pendulums. Radius of gyration. Definition of surface Tension and its Calculation from the Capillary ascent of a liquid.

II.—Heat—

Thermometry. Standard air thermometer. Coefficient of expansion of Solids, liquids and gasses and their determination. Unit of heat and Calorimetry. Specific heat of solids, liquids and gases. Change of State and latent Heat. Vapour pressures and their determination. Hygrometry, Conductivity. Determination of Coefficient of conductivity. Determination of Mechanical equivalent of heat. Radiation and its laws. Prevosts Theory of Exchanges. Kinetic Theory of gases. Van der Waal's equation. Critical temperatures. Porous plug experiment and liquifiaction of gases. Isothermal and adiabatic transformations. Indicator diagrams. Carnot's heat engine. 1st

and 2nd Law of thermodynamics, Absolute Scale of temperature.

III.—Sound—

Nature of Sound waves. Propagation of sound. Determination of the Velocity of sound in gases. Doppler's principle and its appliation. Reflection and refraction of sound. Applications of the equation. $Y = a\dfrac{\sin. \frac{2\lambda}{}}{\cos. \lambda}(Vt + X)$ Interference of Sound waves. Beats. Musical intervals.

Stationary Waves. Resonance. Lissajou's Figures. Determination of frequency and wave lengths of notes by the vibrations of strings and air columns.

IV Optics..—

Corpuscular and wave theory of light. Elementary mathematical formulae relating to the reflection and refraction of light. Dispersion and spectrum Analysis. Chromatic aberration and achromatic combination.

Telescopes and Microscopes. Elementary knowledge of the Structure of the eye. Defects of vision. Determination of velocity of light.

Rectilinear propagation of light. Deduction of the Laws of reflection and refraction. Interference of light. Newton's rings and colours

of thin plates. Diffraction. Plane and concave diffraction gratings. Double refraction in Uniaxial Crystals. Plane, circularly and elliptically polarised light. Quarter Wave plate. Babinat's compensator. Rotation of Plane of polarisation. Simple polarimeter.

V. Magnetism and Electricity.--

Lines of magnetic force. Magnetic Potential. Action of one magnet on another placed broadside or endways.

Determination of magnetic moments. Terristial magnetism and determination of the Horizontal component of the Earth's magnetic force and the dip. Magnetic Induction. Coefficients of megnetisation and induction. Permeability. Hysteresis. Diamagnetism.

Proof of the Law of Electrical repulsion and attraction. Diclectric Constant. Thomson's quadrant and absolute Electrometers. Calculation of potential, capacity and energy in simple cases. Frictional and inductive machines.

The Electric current. Ohm's Law. Galvanometers. Conjugate conductors and Wheatstone's net work. Determination of resistances. Joule's Law. Determination of Electromotive

force by potentionmeter. Electrolysis and electro chemical equivalents. Thermoelectrical currents.

Peltier and Thomson's effects. Electro-Magnetism. Electromotive Force produced in conductors by altering the magnetic field sorrounding them. Coefficients of mutual and self inductance.

Ruhmkorff's coil. Definitions of Coulomb, Ampere, Volt, Farad, Ohm, Watt and Joule. Elementary theory of simple dynamos, motors and transformers. Electrical measuring instruments, e. g., Ammeter, Voltmeter and Wattmeter. An elementary account of wireless Telegraphy. Discharge of electricity through gases. Cathode Rays and X Rays. Elementary knowledge of Radio-activity.

PRACTICAL EXAMINATION.

The Practical Examination will be held in the University Laboratory. The Sub-joined list of experiments indicates the ground to be covered.

I.—General Properties of Matter.

1. Slide Rule and exercises in reading different Vernier Scales.
2. Sensitiveness of the Balance.

3. Determination of Young's Modulus by stretching.

4. Moment of Inertia of a fly-wheel.

5. Determination of surface tension.

II.—*Heat*

6. Determination of Coefficient of linear expansion.

7. Effect of Stem exposure on thermometer readings.

8. Weight thermometer.

9. Verification of Newton's Law of Cooling.

10. Specific Heat of a liquid by the method of cooling.

11. Constant Volume air thermometer.

III. *Light.*—

12. Focal length of convex and concave lenses.

13. Photometry.

14. Determination of Refractive index of liquids and Solids by Microscope.

15. Magnifying power of a telescope.

16. Determination of heights by sextant.

17. Determination of the Refractive index of a prism.

18 Determination of wave lengths by diffraction grating.

IV. Sound.—

19. Velocity of Sound by Resonance.

20. Determination of pitch by Sonometer.

V. Magnetism and Electricity.—

21. Magnetic Moments and Neutral points.

22. Determination of H.

23. Determination of dip.

24. Variation of Magnetic field due to a circular coil along the axis.

25. Use of P.O. Box and Wire bridge.

26. Determination of battery resistance by Mance's Method.

27. Determination of Galvanometer resistance by Thomson's method.

28. Comparison of E. M. F. by potentiometer.

29. Electrical determination of J.

30. Electro Chemical equivalent of copper.

Chemistry.

Ordinary Course.

Physical Chemistry.—

Outlines of atomic theory, Gay Lussac's Law of volume, Avogadro's hypothesis. Determination of equivalents weights, specific heats of compounds and elements, isomorphism.

Periodic classification of elements. Methods
of determining atomic and molecular weights.
Kinetic theory of gases. Vander Waal's equa-
tions. The phase rule, laws of mass action,
reversible reactions, Theory of solutions,
osmetic pressure, influence of Solutes on
freezing and boiling points, electro-chemical
equivalents, laws of electrolysis, avidity of
acids and bases, Catalysis elements of spectrum
analysis, thermo-Chemistry.

Inorganic Chemistry.—

The occurrance, preparations and properties
of the following elements and their important
compounds treated specially with regard to
the periodic classification. Outlines of the
main metallurgical processes of the metals
indicated by an asterisk treated in non-Tech-
nical language.

Argon, helium, litterium, sodium*potassium*
robedium, caesium, copper,* silver,* gold,*
magnesium, calcium,* strontium, barium. zinc,*
cadmium, mereury,* boron, aluminium,* carbon
silicon, tin, lead,* nitrogen, phosphorous,
arsenic, antimony bismuth, oxygen, sulphur,
sellenium, tellurium, chromium,* flourium,
cholorine, bromine, iodine, manganese,* iron,
cobalt, and nickel*.

Practical Inorganic Chemistry.

Preparation of salts by the action of acids on :—

A.—Metals

B.—Oxides

C.—Carbonates.

Preparation of salts by double decomposition and of simple double salts a alums.

Also preparation of the following :—

Cuprous chloride, chromyl chloride, potassium bichromate, pure sodium chloride from impure sodium chloride, sodium *thio-sulphate* and potassium chlorate.

Qualitative analysis of mixtures of substances containing not more than four radicles, positive or negative by dry or wet methods.

Ammonium, sodium potassium, magnesium, calcium, strontium, barium, zinc, manganese, nickel, cobalt, aluminium, iron, chromium, mercuric, bismuth, cadmium, copper, lead, silver mercurous carbonate, nitrite, sulphide chloride, bromide, iodide, nitrate, chlorate, acetate, chromate, dichromate, per-manganate, sulphate, phosphate, oxalate.

Acidimetry, alkalimetry, titration of iron with permanganate and dichromate. Standardisation by oxalic acid.

Gravimetric estimation of calcium, copper, lead, Zinc, nickel, iron, aluminium, Sulphate, chloride, water of crystalliration.

Organic chemistry :—

The following indicates the scope of examination for the B.Sc. pass degre in organic chamistry : — Composition and relation of some of the typical carbon compounds, isomerism, including optical isomerism, polymerism, purification of organic substaances, dislillatiou, crystallisation, criteria of purity, boiling point, melting point, methods of ultimate analysis of organic campounds, colculation of molocular weights from empirical formula, constitution formula.

The modes of occurrences, general methods of preparation, characters, constitutional formula of the (first five members) Saturated hydrocarbons and acetylenes, and olefines.

The prepreparation, charactor and the constitutional formula of the following simple derivatives of the saturated hydrocarbon should also be studied.

1. Halides ... Chlonoform, chloral, bromoform, iodoform and carbon tetrachloride.

2. Alcohols ... Methyl, ethyl, propyl, butyle, and auryl.

3. Ketones ... Methyl and ethyl ketones.

4. Aldehydes... Formaldehyde and acetaldehyde chloral.

5. Monobasic acids. Foruric, acetic and propionic and butyric. Acetyl chloride and acetic aubydride.

6. Esters ... Meihyl and ethyl esters.

7. Ethers ... Dimethye and diethyl, ethyl methyl.

8. Amines ... Methyl, ethyl, dimethyl and diethyl and trimethyl and quaternary methyl ammonioum hydroxide and iodide.

Dihydric alcohol... Glycol.

Frihydric alcocol.. Glycerine.

Oils and fats ... Soap; glycerides of palmitic stearic and oleic acids treated in a descriptive manner.

Dicarboxylic acids. Oxalic, malonic, succinic.

Hydroxy acids ... Tartaric, citric and lactic acids.

Cyanogeas ... HCN, Methyl and ethyl cyanides, Urea.

General properties and reactions of carbo-hydrates including their manufacturing proces-ses, glucose, fructose, sucrose, and starch.

Distinction between fatty and aromatic compounds.

Benzene, tobrene, chlorobenzene, chloro tobrene, Benzyl chloride, nitrobenzene, dinitro-benzene, aniline, diazobenzene, chloride, diazo-reactiou, benzaldehyde, benzoic acid, benzene-sulphuric acid, acetanilide, benzyl chloride, benzyl alcohol, phthalic acid, salicylic acid, phenol, pyrogallol, naphthaline ; J. & B. naph-thol. J. & B. naphthyl amine.

Practical:—

Identification of C, H, N, S and halogens qualitatively in organic compounds, determi-nation of melting and boiling points, fractional distillation.

Identification of common organic com-pounds:—

(A) C. H & O (1) Alcohol monohydric :— metyl and ethyl.

Alcohol trihydric :—
glycrerine

(2) Aldehydes :—formaldehy de

(3) Ketones :—acetone.

(4) Acids Monobasic : formic and
　　acetic Acids dibasic :—

　　(a) Oxalic acid.
　　(b) Tartaric acid Acids tribasic
　　　　citric acid.

(5) Ethers :—Ethyl ether

(6) Esters :— Ethylacetate

(7) Carbohydrates :—
　　(a) Cane sugar
　　(b) Grape sugar;
　　(c) Starch

(B) Carbon, H and halogens :—
　　(a) Chloroform
　　(b) Iodoform
　　(c) Chloral hydrate
　　(d) Bromobenzene

(C) Carbon, hydrogen, nitrogen and probably one
　　metal :—
　　　　K. C. N.

(D) Carbon, hydrogen, nitrogen and oxygen:—
　　　　Urea.

Arometic :—

　　A. Carbon and hydrogen (a) benzene.
　　B. Carbon, hydrogen, oxygen :—phenols
　　　　(carbolic acid)

Acids :—Benzoic and salicylic.

Amines :—aniline.

Preparation of :—ethylene, ethylene di-bromide, ethyl alcohol by fermentation, ethyl-ether, ethyl acetate, soap, acetaldehyde, iodoform, formic form, oxalic acid, acetic acid form pyroligneous acid, acetamide, oxalic acid from sawdust, nitrobenzene, and anilinie.

There shall be two papers and a practical examination.

FIRST PAPER :—

Physical and inorganic ... marks 50

SECOND PAPER :—

Organic   ... marks 50

PRACTICAL :—   ... marks 50

Urdu

1. For students whose mother tongue is Urdu :—

Text—

(۱) دیوان غالب (حصہ غزلیات)

(۲) مقدمہ شعر و شاعری از مولانا حالی

2. For students whose mother tongue is *not* Urdu :—

Text—

(۱) مجموعۂ نظام حالي ، انتخاب کلام نظیر

(۲) منتخبین سر سید یا پریم پچیسي

Also Essay and *Viva Voce*.

Theology

(*a*) Sunni Theology :

(۱) فقہ – ابواب ہدایہ (نکاح – کفو – محرمات – ولایت – طلاق – مہر – خلع – وقف – ہبہ – وصیت – شفع)

(۲) کتاب الطہارة – کتاب الصلواة

(۳) تاریخ – تاریخ القرآن

(۴) عقائد – عقیدۃالحسنہ شاہ ولي الله صاحب معہ شرح وایضاح

(*b*) Shia Theology.

(۱) کتاب المیراث از جامع عباسي یا از شرایع الاسلام (تمام باستثناء قواعد میراث)

(۲) کتاب التجارة – منتخبات از کتاب التجارة (محرمات و مکروہات و مباح)

(۳) عقائد از حدیقۂسلطاني (مقامات از باب توحید و قبر ومعاد

(*c*) Muslim History in Place of Theology. For Non-Muslim Students only, (B. A. and B. Sc. Examination Part I.)

Text:—

A short History of the Saracens by Amir Ali (Abbasside Period)

Or

Urdu Translation تاریخ اسلام

Retrence:—

The Caliphs' last heritage by Sykes.

(d) Additional course of Urdu in place of Theology for Non-Muslim students. Only one paper will be set on Text books and essay.

١ ۔ توبۃالنصوح مصنفہ مولوی نذیر احمد خان صاحب

٢ ۔ مسدس حالی

Zoology

The examination in Zoology will comprise two papers and a *practical* examination. *Candidates must gain minimum pass-marks in the practical examination as well as pass in the total of the papers in the* Science *subjects.*

The following syllabus is prescribed :—

The general principles of Biology treated in an elementary fashion including the theory of evolution with the general notions of variation, heredity and adaptation.

The elementary principles of the geological and geographical distribution of animals.

The structure and phenomena of the animal cell treated in some detail.

Reproduction, sexual and asexual ; parthenogenesis, alternation of generations ; metamorphosis.

The generall classification ánd characteristics of the common forms of animal tissues.

The principal characteristics, structure, biology, and development of the Invertebrata as illustrated by—

Protozoa	...	Amœba, Paramœcium or Vorticella.
Cœlenterate	...	Hydra, Obelia.
Annelida	...	Earthworm, Nereis, and Leech.
Arthropoda	...	Prawn or Crayfish, Periplaneta, Anopheles (including an outline of the life-history of the malaria parasite), and Puthus or other Scorpion.
Mollusca	...	A fresh-water Mussel (Lamellidens or other type) and Ampullaria.

The principal characteristics, structure, biology, and development of the Chordata as illustrated by—

ACRANIA—

Urochordata	...	Ciona or Ascidia.
Cephalochordata	...	Amphioxus.

CRANIATA—

Pisces	...	Scyllium or other Elasmobranch.
Amphibia	...	The Frog.
Reptilia	...	Calotes or other lizard.
Aves	...	Columba. (The skeleton of Gallus may be substituted.)

Mammalia   ... The general characters of the
            Prototheria, and Metatheria,
            Lepus, Canis (skull only).

The outlines of the development of Amphi-oxus, the frog, chick, and rabbit. Placentation

The elementary physiology of the various organs of the animal body as illustrated by the Frog and Rabbit.

1ST PAPER.—

Shall comprise the non-Chordata, the structure of the animal cell, the subjects of Reproduction and Histology and the general principles of Biology.

2ND PAPER.—

The Chordata, Vertebrate Embryology and Physiology and Geological and Geographical distribution.

PRACTICAL COURSE.

In the Practical Examination candidates will be expected to show a practical knowledge of the types and subjects prescribed.

Note-books containing a complete record of laboratory work must be produced at the Practical Examination.

Text-books recommended :—

MARSHALL and HURST : Practical Zoology—
(Smith Elder).

THOMSON : Outlines of Zoology.

HOWES : An Atlas of Practical Elementary
Biology—(Macmillan).

MARSHALL : The Frog— (Macmillan)

PARKER and HASWELL : Test-book of Zoology—
(Macmillan)

Botany.

The Examination in Botany will comprise
two papers and a *practical* examination. *Candidates must gain minimum pass-marks in the practical examination as well as pass in the total of papers in the* Science *subjects.*

The following syllabus is prescribed :—

1. The anatomy (including histology) of the
vegetative and reproductive organs of the Phanerogamia and Cryptogamia, treated from the
comparative and functional stand-points. A
general knowledge of the plant cell and plant
tissues. The cell contents and their micro-
chemical reactions. An elementary knowledge
of plant distribution.

2. The morphology, physiology and life-histories of:—

THALLOPHYTA—

(a) Bacteria.

(b) Alæ ... Pleurococcus, Ulothsix, Spirogyra, Nostoc, Fucus.

(c) Fungi ... Yeast, mucer or other mould: Cystopus or other Oomycete, Nectria, Morchella or other Ascomycete, Puccinia and Agaricus.

BRYOPHYTA—

(a) Hepaticae ... Marchantia.

(b) Musci ... Funaria or other Moss.

PTERIDOPHYTA—

(a) Filicinæ ... Aspidium, or other fern.

(b) Lecopodinæ... Selaginella.

SPERMAPHYTA—

(a) Gymnosperma Pinus.

(b) Angiosperma. A detailed knowledge of a typical flowering plant and a knowledge of typical representatives of the

following natural orders:—
Lili aceæ, Grnmineæ,
Palmeæ, *Ranunculacaeæ*
papaveraceæ, Cruciferæ
Compositæ, Urticaceæ
(including Moraceæ, and
Ficaceæ), Umbelliferæ,
Rosaceæ, Malvaceæ,
Leguminosæ, Acantha-
ceæ, Solanaceæ, Labiatæ
Convolvulaceæ.

3. VEGETABLE PHYSIOLOGY—

(a) *The stability of the plant body*:—Turgidity
tensions of tissues, stereome.

(b) *Nuirition*:—Chemical constituents of the
plant, the essential constitutents of plant
food ; the absorption of water and dis-
solved substances ; water conduction ;
transpiration ; assimilation ; the utilisa-
tion and transference of the products of
assimilation ; reserve materials ; special
processes of nutritiou-parasitism, saprophy-
tism, etc.

(c) *Respiration*:—General facts ; the produc-
tion of heat ; the movement of gases in
respiration.

(d) *Growth*:—General facts ; the effect of external influences on growth,

(e) *Movement*:—Protoplasmic movements ; imbibition movements ; heliotropism ; geotropism ; contact stimuli and their effects ; movements of irritability.

(r) *Reproduction*:—Vegetative reproduction ; sexual. reproduction including double fertilisation ; cross and self-polination dissemination and germination of seeds.

PAPER 1 shall comprise the Morphology, Physiology and Life-histories of the Cryptogamia.

PAPER 2 the Morphology, Physiology and Life histories of the Flowering Plants and general Plant Physiology.

PRACTICAL COURSE

The dissection of plants and parts of plants. The prepration, staining and study of microscopical sections of plants and the principal varieties of plant tissues. The uses of stains and other re-agents, and the micro-chemical reaction of protoplasm, starch, and cellulose with its derivatives.

A practical study of the typical plants enumerated under section 2 ; the referring of

plants and parts of plants to their appropriate position in the given schedule of classification.

The description of plants and parts of plants in technical-language.

Simple experiments in Plant Physiology.

Note-books containing a complete record of laboratory work must be produced at the practical examination.

Text-books recommended :—

SCOTS : Structural Botany (A. and C. Black).

BOWER and GWYNNE-VAUGHAN : Practical Botany for Beginners (Macmillan).

GREEN : Text book of Botany (Churchill).

STRASBURGHER: Text-book of Botany (Macmillan).

STRASBURGHRER and HILLHOUSE ; Practical Botany (Swdan Sonnenschein).

COULTER BARNES and COWLES : Text book of Botany.

WILLIS : Flowering plants and ferns (Cambridge University press).

B.A. AND B. Sc. HONOURS EXAMINATIONS

English

The scheme of papers shall be five, each of three hours duration.

1ST PAPER.—

Candidates will be expected to show an accurate knowledge of the following prescribed texts:—

1. Nonne's Priest's Tale and Prologue—Chaucer
2. Henry IV, Pt. I.
3. Antony and Cleopatra.
4. All for Love—Dryden.
5. Pippa Passes—Browning.
6. Modern Poetry (As for the B.A. Ordinary)

2ND PAPER.—

1. Selections from the Morte D'Arthur (Ginn & Co.,)
2. Chesterfield's Letters (Ginn & Co.)
3. Nash's Unfortunate Traveller (Blackwell)
4. Carlyle's Heroes & Hero worship
5. George Eliott's Romola.

3RD PAPER.—*General.*—

Candidates will in this paper be examined with a view to discovering their acquaintance with a non-detailed study of literature whose scope shall approximate to the list recommended below. Courses of lectures will be given upon the authors contained in this list with particular regard to their comparative relation in a survey of English litrature, their contribution to modern thought and social habit. There will be a special group of lectures devoted to Greek Literature, with due stress upon the part it has played in the growth and development of English Literature.

The following are recommended for non-detailed study :—

1. Six Elizabethan Plays (World's Classics)
2. Love for Love—Congreve
3. The Rivals—Sheridan
4. The Importance of being Earnest— Wilde
5. Fanny's First Play
6. The Silver Box—Galsworthy
7. Lord Jim—Conrad
8. The Forest Lovers and Song of Renny— Hewlett
9. Tess of the D'Urbervilles—Hardy

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10. The Idea of Comedy—Meredith

11. Evan Harrington—Meredith

12. Selections from Ruskin—Hampshire

13. The Forerunner—Merjekowsky

14. Plato Dialogues (Selections—Butcher—Clar. Press)

15. The Greek Poets (Selected chapters—Symonds)

16. Greek Studies—Pater

17. The Idiot—Dostoievsky

18. The Darling & other stories—Tchehov (Chatto & Windus)

19 The Atheist's Mass and other stories (Dent)

20. The Greek Genius and its meaning to us—Livingstone

4TH PAPER.—

History of English Literature and Social History.

Text-book prescribed.—

Long's History of English Literature

Books recommended.—

1. A Survey of English Literature, 1780-1880—Oliver Elton

2. Modern Studies—Oliver Elton

3. The Eighteen Nineties—Holbrook Jackson

4. Jack's History of English Literature,

5. Green's Short History of the English People

6. Modern English Leterature-1890-1914

For Reference only.—

1. Chamber's Encyclopaedia of English Literature

2. Cambridge History of English Literature

3. Traill's Social History

Further books will be recommended from time to time, as need occurs, by the Tutors in charge of studies.

5TH PAPER.—*Literary Criticism.—*
Books prescribed.—

1. Critici Loci—Saintsbury

2. A short Manual of Prosody—Saintsbury

3. Aristotle's Poetics (Butcher's Translation)

4. Renaissance Criticism—Spingairn— (Selected chapters)

The following are recommended.—

1. Methods and Aims in the study of Literature (Ginn & Co.)

2. Lambourne's Rudiments of Criticism

3. Thompson's Teaching of English

4. Towards a Theory of Art— Abercrombie.

5. Interpretation of Crocee's Aesthetic— Wildon Carr

6. Countries of the Mind—Middleton Murry

7. Aspects of Literature— Middleton Murry

8. The Handling of words—Vernon Lee

9. Shakespearean Criticism—Nichol Smith

For Reference only.—

1. History of Criticism—Saintsbury

For English Language.—

1. Bradley's Making of English

3. The English Language—Peearsall Smith

For Language Reference.—

1. The Growth and Structure of the English Language—Jesperson

2. Colloquial English—Wylde

N. B.—Questions bearing on Language and Prosody will be asked in this paper. Not more than one question, however, need be selected by the candidate from each of these headings, and should be answered fully.

PAPER 5TH.—*Optional.—*

This shall comprise a study of a modern European language, either French or German. The

Department of English Studies dose not insist on candidates submitting themselves in this section. Those who dc so, however, will have a note in their Certificate of Graduation that the candidate has passad proficient in French or German. There will be no Grammar paper, but candidates will be expected to translate unseen passages in either language chosen and to answer questions on the books prescribed.

Book prescribed.—

French.—

La Tulipe Noire

German.—

Eight Stories from Anderson (Pitt Press)

Arabic

(For Honours Students)

PAPER 1ST.—Diwan Hamasa Bab Hamasa Muallaqat

PAPER 2ND.—Atwaqul Dhabub Zomukholari Maqamat of Hamadani 1-27

PAPER 3RD.—Futuhul Buldan Beladhare

PAPER 4TH.—Unseen translation : grammar & elements of rhetoric

PAPER 5TH.—Translation into Arabic.

Secondry Subjects

Persian

English Literature

Philosophy

Economics

History

Persian

Every honours school student shall take up two additional subjects in which he will be examined at the end of two years. The courses for the additional subjects shall either be the same as the courses for the pass degree in those subjects, or two papers from honours courses as follows :—

1. *Either.*—

    English Literature :—
        Criticism and appreciation.
                    Or
        Arabic Literature produced in Persia,

2. *Either.*—

    Muslim History :—
        (Ghaznawi and Saljuq Period).
                    Or
    Indian History (Moghul Period).
                    Or
    Economics (General Economics)
                    Or
    Philosophy (Ethics).
                    Or
    Mathematics (Pass course).

The pass markes in the additional subjects shall be 25% in the case of pass courses and 30% in the case of honours papers

The choice of the honours papers in the additional subjects shall depend upon the mutual agreement of the departments concerned,

A candidate failing in one of the additional subjects may appear at the next examination in that subject only,

The honours examination shall be held at the end of the third year, The following are the courses of study :—

1st PAPER.—

(a) Prescribed course for the B. A. (Pass) Examination, with a more critical study of the authors, Special attention is also to be paid to the Literary History of Persia,

(b) Arabic (Text) and Grammar. سجاني الادب (Selections as recently formed part of the Matriculation course of the Allahabad University),

كتاب النحو
كتاب الصرف } عبدالرحمن امرتسري

2nd PAPER.—
General Literature :—

(a) Prose :—
(مقا لةً اول تهذيب اخلاق)
اخلاق ناصري

شبنم شاداب

(b) Poetry :—
فزليات حافظ –
رديف الف– رديف ت – رديف ث – رديف د – رديف م ٕيم – رديف ي
مثنري يوسف زليخا (جامي)

3RD PAPER.—

Special Subject—any one of the following Groups :—

(a) Critical study of Sufistic Literature :—

حديقه سنائي باب ۳ و۳ و۵ و۷ و۸

Recommended for further study.—

Nicholson :—Studies in Islamic mysticism.

(b) Historical Literature :—
(of the Monghol Period).

تاريخ جهان كشاے عطا ملك جويني

Recommended for further study:—

Sir Henry Mowarth :—

History of the Monghols Vol. IV.

(c) Later Prose and Poetry :—

Prose:—Translation of Alexander Dumas' Three
Musketeers by Mohamed Tahir Mirza.

Peotry :— قصايد قاآني as per appendix A.
Babi Poetry قرةالعين نيسل

Selections to be announced later on.

Books recommended for further study:—

Brown :—Prose and Poetry of Modern Persia.

Brown :—The Persian Revolution.

4TH PAPER :—

    Literay History, Rhetorics, and Prosody:—

    The following books are recommended :—

Browne:— A Literary History of Persia Vol I & II

Browne:— Persian Literature under Taratr Domi-
       nions.

Shibli :—   شعرالعجم Vol I, IV & V

        شمس قيسى   المعجم في معايير اشعار العجم

                  and

              حدائق البلاغة

5TH PAPER :—Essay on a subject connected with
          Literature.

    NOTE.—Examination in the 3rd paper (Special Subject) may be
condoned in the case of candidates who offer editing a manuscript
for publication, under the supervision of the Department and with
the previous sanction of the Academic Council).

APPENDIX A.

قآني

۱ – دوشم ندا رسید ز درگاه کبریا

۲ – بگرِدنِ تبیره ابرے بامدادان برشد از دریا

۳ – دو قلعۀ کوراند باهم مصاحب

۴ – خیمۀ زربفت زد بر چرخ نیلی آفتاب

۵ – از سروش وحدتم بر گوش هوش آمد خطاب

۶ – بله نزدیک شد اے دل که زمستان گذرد

۷ – بهار آمد که از گلبن همی بانگ هزار آید

۸ – فرو بگرفته گیتی را بباغ و راغ کوه و در

۹ – چه ماه بود که از بام خانه کرد طلوع

۱۰ – چند خواهی پیرهن از بهر تن

۱۱ – رسم عاشق نیست با یکدل دو دلبر داشتن

۱۲ – رود آمون گشت جیحون را شک جیحون زاے من

۱۳ – نهانی از نظار اے بے نظیر از بس عیان استی

۱۴ – ساقی بده رطل گر ان می زان که دهقان بردود

۱۵ – غم و شادی است که بایکدگر آمیخته اند

۱۶ – شکسته نامۀ آزر گسسته نامۀ قسطا

۱۷ – اے زلف تو پیچیده تر از خط ترسل

۱۸ – زشاهدے که بود روے آن نگار نگار

۱۹ – مگر شقیق عقیق است و کوه و کان یمن

۲۰ – دوش برآمد از درم آن مه برج دلبری

Mathematics

There will be six papers as follows :—

1st Paper.—

- (a) Algebra, as in Pass degree Paper I, together with recurring series, Inequalities; Theory of numbers.
- (b) Trigonometry as in Pass degree paper I, together with Trigonometrical factors (Irrationality of R. Argand's Diagram)
- (c) Theory of algebraic Equations—as in Burnside and Pantons Cubic and Biquadratic Equations Symmetric Newton's Hover's Determinants method.

2nd Paper.—

- (a) Analytial Geometry of two dimensions as in Pass degree Paper I, together with Systems of Conics ; Homogeneous Coordinates, tangential coordinates, Invariants and covariants.
- (b) Pure Geometry—Ranges and pencils ; cross ratios, the properties of the triangle and quadrilateral, projection both orthogonal and conical ; projective properties of conics, imaginary elements; the cricular points ; reciprocation, involution and involution properties of conic sections.

3RD PAPER.—

(a) Calculus—As for the Pass degree Paper II together with Taylor's Theorem ; Maxima and Minima of functions of two or more variables; change of variables; Jocobians; Hessians; Definite Integrals including B. and T integrals, multiple integrals ; the use of Fouries Series. Application of the Theory of Residues.

4TH PAERR.—

(a) Geometry of three dimensions—Standard conicoids ; reduction of general Equation of the 2nd degree and generators of conicoids.

(b) Differential Equations—Ordinary Equations of the first order ; trajectines; linear Equations with constant coefficients ; simple forms of the Equations of the nth degree, depression of the order; homogeneous and exact Equations ; reduction to normal form by change of variable ; variation of parameters ; solution in Series including Legendre's Equation and the Simple properties of Legendre's functions; Riccatti's Equation ; simultaneous differential Equations ; with constant

coefficients; total differential Equations; partial differential Equations including standard forms, Logrange's Charpit's and Monge's methods and partial linear Equations with constant coefficients.

5TH PAPER.—

(a) Statics—as in Pass paper III together with systems of forces in two or three dimensions ; strings in two dimensions and centres of gravity more fully treated.

(b, Dynamics of a Particle—as in Pass paper III together with central orbits, harmonic motion; and constrained motion. Motion in resisting Medium.

(c) Hydro-statics—as in Pass paper III together with atmospheric pressure ; Boyl's and Charles's laws.

6TH PAPER :—

(a) Spherical Trigonometry—including general properties of spherical triangles.

(b) Mathematical astronomy—as far as necessary for the Explanation of simple phenomena.

Philosophy

The Honours School of Philosophy shall include :—

1. Philosophy.
2. Two of the following allied subjects :—

A.—Classical language, History, Economics, Mathematics, and Zoology and English Litrature.

There shall be six papers in Philosophy. Each paper shall be of three hours' duration and shall carry 100 marks. *Viva Voce* shall also carry 100 marks.

The following books which are in no sense prescribed are recommended to indicate the standard of knowledge required in each paper :—

1st PAPER.—

Ethics.—

Moore   ... Principle of Ethics.
Rashdall   ... Theory of Good and Evil.
Spencer   ... Data of Ethics.
Kant   ... Metaphysics of Ethics.
Sidgwick   ... Methods of Ethics.

2nd PAPER.—

Psychology.—

Stout   ... Manual of Psychology.
Ward   ... Psychological Principles.
James   ... Principles of Psychology.
Wundt   ... Outlines of Psychology.

3RD PAPER.

Logic.—
Mill ... System of Logic
Johnson ... Inductive and Deductive Logic.
Keynes ... Formal Logic.
Bosanquet ... Essentials of Logic.
Joseph ... Introduction to Logic.

4TH PAPER.

Metaphysics.—

Kulpe ... Introduction to Philosophy.
Lossky ... Intuitive basis of knowledge.
Windleband ... Introduction to Philosophy.
Russel ... Problems of Philosophy.

5TH PAPER.

History of Modern European Philosophy.—

Weber ... History of Philosophy.
Rogers ... Students' History of Philosophy
Perry ... Recent Philosophical tendences
Rand ... Modern Philosophers.

Or

Ancient European Philosophy

Stacey ... Critical History of Greek Philosophy.

Burnet ... Early Greek Philosophy,
Zellor ... Aristotle.
Zellor ... Plato.

Or

Ancient Muslim Philosophy.

Iqbal	... Metaphysics in Persia.
De Boar	... History of Philosophy in Islam.
Nicholson	... Mysticism in Islam.
MacDonald	... Development of Muslim Theology and Philosophy.
O'Leary	... Arabian Thought and its place in History.

Or

Indian Philosophy.

Deussan	... Philosophy of the Upanishade·
Das Gupta	... A History of Indian Philosophy
Rhys David	... Budhism in India.
Max Muller	... Six Systems of Indian Philosophy.

6TH PAPER.—

Essay.—

History

There will be six papers.—

1ST PAPER.—*Indian History.*—Muhammedan Period (1000 to 1757 A.D.)

1. Ferishta	... Gulshani Ibrahimi, Vol. 1.
2. Khafi Khan	... Muntakhab-ul-Lubab, Vol. 1
3. Ghulam Ali	... Seirul-Mutaakhirin. pp. on Aurangzeb.

4. Thomas ... Chronicles of the Pathan Kings of Delhi.

5. Elliot and Dowson. Vols. 2, 3 and 4 (Translations of Tarikhi Yamini, Tabaqati Nasiri, Ziauddin Barany—Tarikhi Firoz Shahi, Afif—Tarikh - i - Firoz Shahi Kirmani—Tarikhi Mubarik Shahi).

6. Ishwari Prashad ... India Under the Tughlaks.

7. Kennedy ... History of the Great Mugals.

8. Irvine ... Later Mugals (Edited by Sarkar).

9. Rushbrook Williams An Empire Builder of the 16th Century.

10. Qanugo ... Sher Shah.

11. V. A. Smith ... Akbar the Great Mugal.

12. Beni Prasad ... Jahangir.

13. Sarkar ... Aurangzeb.

2ND PAPER.—*Either A* —

Hindu Period (upto 1000 A. D.)

Recommended :

1. V. A. Smith ... Ancient History of India.

2. Regozin ... Vedic India.

3. Rhys-Davids ... Budhist India.

4. Havell ... Aryan Rule in India part 1.

5. Law ... Studies in Ancient Hindu Polity.

To be Consulted.

1. Cambridge History of India, Vol. 1.
2. Bhandarkar ... Early History of the Deccan
3. Rhys David ... Budhism.
4. V. A. Smith ... Asoka.
5. K. M. Panikkar ... Harsha.
6. Chand ... History of Ancient India.
7. Fraser ... Literary History of India.
8. Watters ... Travels of Yuan Chwang.
9. Ayianger ... Ancient India.
10. Mukerji, R. K. ... Local Govt. in Ancient India.
11. Al-Beruni ... India (trans. by Sachau)
12. Monier-Williams ... Hinduism.
13. Dutt, R. C. ... Civilisation in Ancient India
14. Havell ... Hand-book of India Art.
15. Syama Sastri ... Kautilya's Arthasastra.

Or (*B*).

British Period (1757 to 1920).

1. Roberts ... History of British India.
2. Wilson ... Lord Clive.
3. Lyall ... Warren Hastings.
4. Keene ... Madhav Rao Scindhia.
5. G. B. Malleson ... Wellesley.
6. Griffin ... Ranjit Singh.
7. Cunningham ... Canning.
8. F. Noyce ... England, India and Afghanistan.

9. Aitchison ... Lord Lawrence.

10. Rushbrook Williams, India in 1918, 1919 and 1920.

Or (C).

Akbar (for the examination in 1925 only)

Prescribed. --

1. Al-Badayuni ... Vol 2. (Trans. by Lowe)
2. Ain-i-Akbari ... (Trans. by Blochmann and Jarrett)

Recommended.—

1. Count von Noer ... Akbar.
2. V. A. Smith ... Akbar.
3. Elliot and Dowson Vol 5 pp. 241 to 576.
4. Abul Fazl ... Akbar Namah Trans. by Beveridge excluding Vol 1.

3RD PAPER.—Modern European History. 1453 to 1878.

Recommended :—

1. Johnson ... Europe in the 16th. Century.
2. Wakeman— ... Ascendency of France.
3. Hassall ... Balance of Power.
4. Morse Stephens ... Revolutionary Europe.
5. Alison Philipe ... Modern Europe.

To be consulted.—

1. Robinson ... Readings in European History, Vol. 2
2. Hollings ... Europe in Renaissance and Reformation.
3. Jane ... Meternich to Bismarck.
4. Armstrong ... Charles V.
5. Norwood Young ... Frederick the Great.
6. Hassall ... Louis XIV.
7. Gardiner ... Thirty years' War.
8. McCarthay ... The Epoch of Reform.
6. Seebhom ... The Era of Protestant Revolution.
10. Marriott and Robertson. ... The Evolution of Prussia.
11. Mahan ... The Influence of Sea-Power on History.

4TH PAPER.— *Either A.*—

Revolutionary Europe (1789 to 1815).

Recommended.—

1. Holland Rose ... The Revolutionary and Napoleonic Era.
2. Madelin ... French Revolution.
3. Mignet ... History of the French Revolution.
4. J. H. Rose ... Napoleon
5. Fisher ... Bonapartism.

To be consulted.—

1. Morse Stephens.. The French Revolution.
2. De Tocqueville... l' Ancien Regime.
3. Young ... Travels in France.
4. Fournier ... Napolean I.
5. Fisher ... Napoleonic Statesmanship.
            (Germany)
6. Johnston ... The Napoleonic Empire in
            Southern Italy.
7. Cambridge Modern History Vols. VIII & IX.

Or (B).

Europe in the 19th Century (1815 to 1878).

Recommended.—

1. Alison Philips... Modern Europe.
2. Seignobos ... Political History of Contem-
            porary Europe.
3. Robertson ... Bismarck
4. Malleson ... Meternich
5. Stillman ... Unity of Italy.

To be Consulted.

1. Alison Philips... Confederation of Europe.
2. Fyffe ... Modern Europe.
3. Countess Cesare- Cavour.
   sco.
4. Guedalla ... The Second Empire.

5. Lipson   ... Europe in the 19th Century.

6. Marriott   ... The Eastern Question.

7. Hodges   ... A Survey of Modern History.

8 Malleson   ... The Refounding of the German Empire.

9. Cambridge Moden History Vols. X & XI.

5TH PAPER.—*Either A.*—

English History.

SECTION A—Political.

Recommended.—

1. Green   ... Short History of the English People.

2. Gardiner   ... Students' History of England.

To be consulted :—

1. Wakeman   ... History of the Church of England.

2. Seelley   ... Growth of British Foreign Policy.

3. Mrs. Green   ... Henry the Second.

4. Tout   ... Edward the First.

5. Beesly   ... Elizabeth.

6. Morley   ... Walpole.

7. Rosebery   ... Pitt.

8. Pollard   ... Factors in Modern History.

Section B. – Constitutional.

Recommended:—

1. Maitland   ... The Constitutional History of England.

2. Taswell-Lang-   English Constitutional History
   mead

To be consulted.—

1. White   ... Making of the English People
2. Medley   ... English Constitutional History
3. Stubbs   ... The Constitutional History of England.
4. Hallam   ... The Constitutional History of England.

Or (B.)

A selected Period of Muslim History to be prescribed from time to time.

For the Examinations in 1925 and 1926: Omayyeds and Abbasides.

Recommended:—

1. Zaidan   ... Omayyeds and Abbasides (trans. by Dr. Margoliouth).

2. Ameer Ali   ... Short History of the Saracens, Chaps. 7 to 25th.

3. Muir   ... Caliphate, Rise, Decline and Fall (Chaps. XXXIII to LXXVIII).

4. Jalal-uddin   ... History of the Caliphs, As-Suyuti   (trans. by Jarrett).

To be consulted :—

1. Von Kremer ... Kulturgeschichte des Orients
(trans. by S. Khuda Bukhsh—
The Orient under the Caliphs.
Chapters, 1, and 4 to 8).

2. Weil ... Geschichte der Islamitichen.
Volker. (English translation
by S. Khuda Buksh—A
History of the Islamic Peo-
ples. Chap. 4 only).

PAPER 6.—Political Science.

SECTION A.—

Political Theory and History of Modern
Political Thought.

Recommended.—

1. Lectures on the Principles of Political
Obligation by Green.

2. Hobbes ... Leviathan, Chaps. 13 to 31.

3. Locke ... Treatises on Civil Government

4. Rousseau ... Social Contract. (Everymen's
Library.)

To be consulted.—

1. Pollock ... Introduction to the History of
the Science of Politics.

2. Bosanquet ... Philosophical Theory of the
State.

4. Leslie Stephens Hobbes.

6. Dunning ... Political Theories Vol. II and III.

6. McCun ... Six Radical Thinkers.

7. Gooch ... Political Thought from Bacon to Halifax (H.U.L.)

8. Davidson ... Political Thought from Bentham to J. S. Mill (H.U.L.)

9. Barker ... Political Thought from Spencer to to-day. (H. U. L.)

10. Delisle Burns ... Political Ideals.

11. Dicey ... Law and Public Opinion.

12. Bertrand Russel. Roads to Freedom.

13. Ramsay Macdonald ... The Socialist Movement. (H. U. L.)

14. Hugh Cecil ... Conservatism. (H. U. L.)

15. Hobhouse ... Liberalism (H. U. L.)

SECTION B.—

Theory and Practice of Representative Government. (with special reference to the Constitutions of England, France, Switzerland and the United States.)

Recommended.—

1. Leacock ... Introduction to Political Science.

2. Woodrow Wilson Congressional Government.

3. Lowell ... Governments and Parties in Continental Europe. (Constitutions of France and Switzerland only).

4. Low ... Governance of England.

5. J. S. Mill ... Representative Government.

To be consulted.—

1. Woodrow Wilson. The State.

2. A. V. Dicey ... Law of the Constitution.

3. Lowell ... Government of England.

4. Bryce ... American Commonwealth.

5. Maine ... Popular Government.

6. Lowell ... Public opinion and Popular Government.

7. Ilbert ... Parliament (H. U. L.)

8. Bagehot ... The English Constitution.

Every candidate will be required to take two of the following Subsidiary Subjects.—

1. Political Economy.

2. Either Persian or Arabic.

3. English.

4. Philosophy.

Note.—Candidates must take either the whole Pass Course in a Subsidiary Subject or one paper from the Honours Curriculum of that subject to be prescribed by the Department concerned.

Physics.

The examination in Physics will comprise five papres in theory and a Practical examination.

1st Paper.—General Properties of Matter and Sound.

2nd Paper.—Heat.

3rd Paper.—Optics.

4th Paper.—Electricity and Magnetism.

5th Paper.—Scientific Method and Essay.

N.B.—Questions on the history of Physics may be asked in any paper.

The following syllabus in addition to that prescribed for the Pass B.Sc. (for 1925) indicates the scope of work in different branches.

General Properties of Matter :—

Dimensions and use of dimensional equation. Qualities of Gravitation. Problems on attraction and Potential. Equipotential Surfaces and Lines of force. Elastic fatigue. Poisson's ratio. Modulii of torsion and Rigidity. Bending of rods and stability of loaded pillars. Vacuum Pumps. Detailed pendulum experiments for determining "g". Impact. Compressibility of liquids. Surface Tension and theory of capillarity. Osmosis. Diffusion and transportation of gases. Waves on the surface of liquids. Viscosity of liquids.

Sound :—

Theoretical investigation of the Velocity of propagation of longitudinal disturbances in elastic

media. Musical scales. Helm-holtz theory of Concord and Discord. Logarithmic Cents. Equation of motion for plucked strings. Theory of singing flames. Maintenance of Vibrations. Vibration of rods and plates. Kundt's tube. Summation tones. Analysis of complex sounds. Accoustical opacity of air.

Heat :—

Pyrometry and low temperature thermometry. Development of Heat theories. V. P. of solutions, V. P. over curved surfaces. Andrew and Amagat's experiments with gases. Continuity of state. Corresponding states. Conductivity of solids by periodic heating. Age of the earth. Diathteremancy of aqueous vapour. Black body radiation. Experiments of Lummer and Pringsheim. Wien's and Stefan's Laws. Evaluation of the Solar constant. Theories of solar Heat. Entropy Thermodynamical relations and their applications. Triple point Thermodynamics of change of State. Mean free path of molecules. Molecular structure of fluids.

Optics.

Spherical and Chromatic aberration. Caustics. Aplanatic foci. Achromatic Combinations. Ramsden's and Huygen's Eyepieces. Zone plates Biquartz. Resolving and Dispersing power of instruments.

Anomolous dispersion. Fabry and Perot's Etalen. Lummer and Gahroke's plate. The Echelon Spectroscope. Michelson's Interforometer. Series Spectrum. Biaxial Crystals. Internal and External conical refraction. The Zeeman effects. verdet constant. Optical theories. Michelson and Morley's experiments. Relative motion of matter and ether.

Electricity and Magnetism:—

Theories of ferromagnetism. Magnetic shell of uniform strength. Measurements of magnetic fields. Crassot's fluxmeter. Hal effect Gauss' theory and its applications. Tubes of force. Electrical images. Storage battery. Alternating currents. Choking coils. High frequency currents. Growing and decaying currents. Measurements of high and low resistances. Electrical units. Dimensions of Electrical quantities. Modern views of Electricity. Lenard Rays. Canal Rays. Radioactivity. Structure of the Atom. Wireless Telephony. Stark effect. Photo-electricity. Properties of moving electric charges. Electro-magnetic discharge of Layden Jar.

Scientific Method and History of Physics :—

1. Westaway ; Scientific Method, its philosphy and practice.
2. Principles of Science by Jevon.
3. Introduction to History of Science by W. Libby.

Practical :—

List of experiments to be performed (in addition to those prescribed for the Pass course) by the Honours B.Sc. Physics students.

1. Determination of Todulus of torsion.

2. Young's Modulus of a rod.

3. Determination of radius of curvature of a Concave spherical surface with a rolling sphere.

4. Determination of 'g' by Kater's Pendulum.

5. Determination of Viscosity of liquids.

6, Determination of the ratio of specific heats by element and Desorme's method.

7. Determination of thermal conductivity of copper.

8. Determination of U liquid by total internal reflection.

9. Calibration of a spectroscope.

10. Measurement of a of light by Frsnel's Ciprism.

11. Measurement of a of light by Newton's rings.

12. Measurement of Magnifying power of a micrescope.

13. Polarimeter.

14. Measurements of velocity of sound in gases and solids by Kundts' method.

15 Measurement of Pitch.

16. Constrnction of a standard cell.

17. Determination of the constants of a Platinum Resistance Thermometer.

18. Determination of the figure of merit of a Galvanometer.

19. Determination of 'H' by Earth Inductor.

20. Calibration of a wire Bridge by Carey Foster's method.

21. Measurement of Electrolytic resistance by Kohlrausch's Method.

22. Measurement of E.M.F. of r thermocouple

23. Standardisation of a Ballistic Galvanometer.

24. Comparision of Capacites.

25. Measurement of low resistance by the Potentiometer.

26. Measurement of self-Induction.

27. Measurement of Mutual Induction.

28. Hysteresis curve for iron.

29. Measurement of Capacity in Electromaguetic units in terms of a resistance and time.

Chemistry.

The examination shall consist of 5 papers and two separate practical examinations as detailed below.—

Marks

1st PAPER.—

Essay on some recent developement of chemistry, subject to be selected by the candidate in consultation with the Chairman of the Department of chemistry to be submitted within 2 months. Candidates shall be expected to be familiar with all original papers published on the subject during the last ten years   100

2nd PAPER.—

Inorganic including history of the subject...   100

3rd PAPER.—

Physical including history of the subject...   100

4th PAPER.—

Organic : Aliphatic and Cycloparaffins   75

5th PAPER.—

Organic : Aromatic, Terpenes and Heterocyclic compounds   ...   75

6TH PAPER.—   Marks

Commercial analysis. The paper shall be
set on the practical methods of
analysis only   50

Practical.—

1st on pure chemistry as distinguished
from commercial analysis   ...   200
2nd on commercial analysis   ...   100

Candidates may submit an original paper in lieu
of paper 1st and commercial analysis including
practical in commercial analysis.

Physical Chemistry.—

Outlines of Atomic Theory, gay-Luesac's Law
of volumes, Avogadro's hypothesis, Determination
of Equivalents, Specific Heats of Compounds and
Elements, Isomorphism, The periodic classification
of elements, Methods of determination of Atomic
Weight, Specific heat at constant temperature and
pressure, Determination of Atomic weights of mona-
tomic gases, behaviour of gasses under high
pressure, kinetic theory and liquification of gases,
Van der Waal's theory, critical point, methods of
determining the critical constants, general properties
of liquids :—vapour pressure, the boiling point.
The general properties of solids :—The melting

point, vapour pressure, vapour density, dissociation and abnormal vapour densities, application of kinetic theory to dissociation of gases, determination of vapour density, additive properties of mixtures of gases, of liquids and of solids. Vapour pressure and boiling points of mixed liquids (including pairs of non-miscible and partically miscible liquids) fractional distillation under reduced pressure, sublimation, phase rule.

The properties of dilute solution, osmotic pressure, direct and indirect methods of determining osmotic pressures, relation between gases and osmotic pressure.

Determination of molecular weights of liquids from their surface tension, influence of solutes on freezing and boiling points, determination of molecular weights of dissolved substances, molecular dissociation and association.

Electro-chemical character of the elements the laws of electrolysis. Ionic and hydrate theory of solutions, Velocity of Ions, transport numbers, Determination of conductivity, strength of acids and bases, action of one electrolyte on another containing a common, solubility product, theory of Ion, indicators. Simple concentration cells.

Laws of mass action and chemical equilibrium. Chemical dynamics and catalysis. Notion about colloids.

The relation between the physical properties ;—

Boiling point, molecular volume, molecular refraction, molecular rotation of compounds and their chemical composition and contitution.

Spectrum analysis, thermo chemistry, elements of crystallography, elementary ideas about isotopes, isobars and structure of atoms.

Practical :—

Determination of densities of CO_2 determination of vapour density by Victor Meyer's method, determination of equivalents of zinc; magnesium etc, by desplacement of H, determination of equivalents of copper, silver, etc, by electrolysis. Determination of basicity and molecular weights of acids, determination of molecular weights of substances by boiling and freezing point methods.

Density of liquids, determination of solubility.

Spectroscope (Identification of unknown elements by plotting wave length curve with known elements that are volatile in the Bunsen flame.)

Determination of partition Co-efficient, heat of mentralization of acids and bases, Electro conductivity by the bridge method. Velocity of the chemical reaction of the first order, *i. e.* hydrolysis of methyl acetate in presence of HCl. Polarimeter, Velocity of inversion of cane sugar.

History of Chemistry.—

From the time of Boyle to the present time. Short life and works of the following chemists.—

Boyle, Joseph Black, Scheele, Priestly, Cavendish, Lavoisier, Dalton, Davy, Berzelins, Faraday, Pasteur, Berthelot, Mendeleef, Bunsen, Dumas, Graham, Ramsay, Curie, Moisson, Emil Fischer, Van't Hoff.

The student should be familiar with the works of the following chemists. —

Bergmann, Gay Lussac, Prout, Dulong Mitscherlich, Cannizzero, Thomson, Berthollet, Landolh, Liebeg, Wokler, Laurent, Gerherdt, Kolbe, Hofmann, Wurtz, Frankland, Kekulae, Friedel, Fittig, Williamson. Walden, Arrhenius, Dewar, Nernst, Pope, Van der Waal, Baeyer, Beckmann, Hantzsch, Victor Meyer, William Perkin, Weslicenus.

Inorganic Chemistry.—

Candidate for honours shall be required to show that he has made a more comprehensive study than for the Pass B. Sc. Degree. Besides what is prescribed for the ordinary Pass course the following is added.

The occurrence, preparation and properties of the following elements and their chief compounds studied from the stand-point of the Periodic Classification :—

Rare Gases of the atmosphere, Be, Ra, Ga, Mo, Ti, Ge, Th. Ce, Tl, V, W, U, Pd.

Practical.—

Besides what is prescribed for the Pass course.

(1) Quantitative analysis including the use of Iodine aad Thiosulphate processes, Cu, $H_2 So_3$, $Mn O_2$, Bleaching powder, total As in Arsenious oxide ;

(2) The estimation of chlorides and cyanides, and thiocyanates by titration with $Ag No_3$;

(3) Gravimetric determination of Mn, Po_4, CO_2, NO_2, $C_2 O_4$, NO_3 (by Lunges Nitrometer), H_2 (by direct and indirect method), Determination of Fë and Fë˙ ions.

Qualitative and quantitative analysis of simple minerals such as dolomite, magnesite, calc spar, pyrites.

Analysis of Silver, Ni and brass coins.

Preparation of Cu_2Cl_2, Cro_3, $KMnO_4$ KI, $H BrO_3$, $NaNO_2$, anhydrous Al or Mg chloride, BaO_2, $H_2 O_2$, Pb O, $Pb O_2$, $Pb_3 O_4$, $Na H CO_3$, $K_4 Fe C_6 N_6$.

Qualitative.—Six radicals including ($S_2 O_3$, SiO_2 BO_3).

Organic Chemistry.—

In addition to a fuller treatment of the subjects in the Pass course the following.

The haloid derivatives of olefines, and acetylenes their alcohols, acids, Esters, sulphides, and salts.

Saturated hydrocarbons. Important alkyl and nitro derivatives ; their merceptans.

Thioesters, Esters of sulphurous and sulphuric acids. Hydroxyl amine, Hydrazine, Oximes, and hydrozones. The organo-metallic compounds (specially of Mg. and Zn). Fatty acids and their esters, Substituted halogen acids. Acid halogen compounds. Acid anhydrides. Thio acids, acidamides, and thio-amides of fatty saturated acids. Glycols and their important derivatives (tri-hydric and hexa hydric alcohols and their important derivatives). Mono-hydrosy fatty acids, and their derivatives (alkyl derivatives of P, As, and Si). Dibasic acids, hydroxy dibasic acids, acetoacetic and malonic esters and their uses in synthesis. The complex cyanides and Cyanic and Cyanuric acids, Nitrites, Isonitrites and isocyanates, thio-cyanates and isothio-cyanates. Thio-urea, Uric acid group. The carbohydrates and ployoses.

Benzene, Toluene. Xylene and their principal derivatives. Diazo-compounds ; diazo-amines, azo, nitro, nitroso, and the amino compounds,

Hydrazines, azo-dyes, diazo-dyes, dihydric and trihydric phenols. The alcohols, aldehydes, ketones, Quinones and acids of benzene, toluene and xylene.' Di-phenyl and tri-phenyl methane groups and their derivatives. Nitro amino and a sulphonic derivatives of Napthelene, and anthracene, alizarin and aniline dyes.

Important hetero cyclic compounds such as :— Furene, thiophene, Pyrrol, Indole, Isatin and Indigo, Quinoline, and isoquinoline. Nicotine morphine, quinine, cinchonine, strychnine, brucine, atropine, cocaine, citral, geraniol, leimonenc, menthol, pinene camphor, amygdaline, caseines. Stereo-iso merism of Carbon and Nitrogen. Steric-hindrance, Tautomerism.

Practical Organic Chemistry.—

The mixture for qualitative analysis may include not more than two of the substances given below:—

Aliphatic.—

Qualitative detection of—

$\left\{ (A) \quad C. \quad H. \quad O. \right\}$

    (1) Alcohol monohydric. (*a*) Methyl

                                 (*b*) Ethyl

          Alcohol trihydric ... (*c*) Glycerol

    (2) Aldehyde   ... (*a*) Formaldehyde

                                   (*b*) Acetaldehyde

(3) ketone   ... (a) Acetone

(4) acid mono-basic   ... (a) Fromic acid

                                      (b) Acetic acid

    acid di-basic   ... (c) Oxalic acid

                                      (d) Tartaric acid

    acid tri-basic   ... (e) Citric acid

(5) Ethers   ... (a) Ethyl Ether

(6) Esters   ... (a) Ethyl acetate

                                      (a) Methyl oxalate

(7) Carbohydrates   ... (a) Cane sugar

                                      (b) Grape sugar

                                      (c) Starch.

$\left\{ \text{(B)} \quad \text{C. H. halogen} \right\}$

    Alkyl Halides   ... (a) Chloroform

                               (b) Iodoform

                               (c) Chloral hydrate

$\left\{ \text{(C)} \quad \text{C. H. N. of a metal} \right\}$

    Cyanides   ... (a) KCN.

$\left\{ \text{(D)} \quad \text{C. H. N.} \right\}$

    Acetamide, oxamide and Urea

Aromatic:—

       A.   Carbon and hydrogen.

           Hydro-carbons ... (a) Benzene

                              (b) Napthalene

Phenols	...	(a) Carbolic acid
		(b) Creosote
Alcohols	...	(a) Benzyl alcohol
Aldehyde	...	(a) Benzaldehyde
Ketones	...	(a) Benzo phenone
		(b) aceto phenone
Quinones	...	(a) Benzo quinone
		(b) Anthra quinone
Acids	...	(a) Benzoic
		(b) Salicylic
		(c) Pthallic
Esters	...	(a) Phenyl Salicylate
		(b) B. Napthol

B. C. H. N.

Nitro Compounds	...	Nitro Benzene
Azo Compounds	...	Azo Benzene
		Azoxy Benzene
Hydrazine	...	Phenyl Hydrazine
Amines	...	Aniline
		P. Toludine
		Napthyl amine

Questions may also be set on the quantitative estimation of C, H, N, S, and halogens.

Determination of Methoxy, Ethoxy, and Carboxyl groups. Estimation of molecular weights of organic acids. The following processes are to be particularly known.

Esterification, acetylation, Benzolation, Nitration, Sulphonation, hydrolysis, and reduction. Preparation of Grignards reagent and with its help preparation of a typical hydrocarbon, tertiary alcohol, a secondary alcohol, and an acid.

Preparation of acetoacetic ester, and with its help preparations of an aldehyde, a ketone and an acid.

Purification of organic compounds, a distillation under reduced pressure, steam distillation, uses of filter pump and Buchner's funnel.

In addition to the preparations given for the Pass course, the following substances should also be made.

Ethyl hydrogen sulphate, C_2H_6, C_2H_5Br, $CHCl_3$, Urea, acetanilide Phenol, Benzoic acid, Benzene sulphonic acid, B-napthalene sulphonic acid, hydroquinone from quinone, diazonium salts and their uses, reduction of diazonium salts. From Napthalene—napthalene tetra chloride—Pthallic acid, Pthallic anhydride—Fluorescein and Eosin. Salicylic acid from Phenol.

Mono chlor acetic acid, Methyl orange, preparation of Grignards reagent and its uses.

Commercial Analyis.—

1. Theoretical.—

Theory of analyis ; analysis of silicates, clays, glass and porcelain ; analysis of cements, analysis of natural carbonate and sulphide ores ; analysis of steel ; analysis of coal ; analysis of alloys ; water analysis, analysis of human urine, saliva and blood ; analysis of indigo and the more important dyes ; analysis of fats, oils and soaps ; analysis of tanning materials.

2. Practical.—

The standard methods of ore analysis ; analysis of the more common natural silicates and commoner varieties of glass ; analysis of alloys ; water analysis ; analysis of human urine ; analysis of oils, fats and soaps ; analysis of indigo ; analysis of tanning materials.

M. A. & M. Sc. (ORDINARY) EXAMINATIONS.

English.

Candidates of B. A. (Ordinary)

Candidates who shall be admitted after having obtained the Ordinary Pass Degree of Bachelor of Arts of this University or of any other recognised University and who wish to proceed to the Degree of M. A. in English shall take the course as prescribed for B. A. Honours with the addition of the special paper in the form of an Essay.

Arabic

1st PAPER.—Nabigha Dhubyani Diwan ; Muallaqat.

2ND PAPER.—Mutanabbi Qafiyat Qaf ; Lamiyat-ul Arab (Shanfaru) مجموعة النظم والنثر
تلاميذ السنة الرابعة

3RD PAPER.—Hariri, Maqamat 1—5 and 46—50. Literary History.

4TH PAPER.—Ibn-i Khaldun Muqaddimat

5TA PAPER.—Unseens and translation into Arabic.

6TH PAPER.—Essay.

7TH PAPER.—Syriac : Gospel of St. Mark and principles of comparative grammar.

8TH PAPER.—

Either — History.—

    Beladhori   ... Fatuh-lu-Buldan

    Tabari   ... Year 14

Or — Philosophy.—

    Avicenna   ... Najat

    Ghazzali   ... Tahafut

    Ibn Rushd   ... Tahafut

Persian

NOTE.—*Persian words must be written in the Persian character.*

1ST PAPER—Classical Prose :—

    Waqai Nemat Khan Ali, 101 pages from the beginning (Newal Kishore Press).

    Akhlaq-i-Nasiri from the beginning to the end of تهذیب النفس

    Nekat-i-Bedil.

2ND PAPER—Qasaid.—

    Qasaid Khaqani, Vol. I, pp. 99—102 and 274—361 (Newal Kishore Press).

    Qasaid Urfi beginning with.

اے متاع درد در بازار جان انداختہ

اقبال کرم می گزد ارباب هـم را

اے پرزدہ دامن بلا را

سپیده دم چه زدم آستیں بشمع شعرر

جهاں بگشتم و دردا بهیچ شهر و دیار

صبح دم چوں دردمد دل صرر شیون زائے من

دمیکه لشکر غم صف کشد بضونطاري

دل من باغبان عشق و حیواني گستانش

رفتم اے غم زدر عمر شتاباں رفتم

چهره پرداز جهاں رخت کشد چوں به هول

زآسماں و زمیں مژده ناگهاں آمد

عادت عشاق چیست مجلس غم داشتن

زخود گردیده بر بندي چه گویم کام جاں یعني

کجا به حسن‌شود باتو هم عناں نرگس

تو بهار آمد که افشاند چو حسن یارگل

3rd PAPER— (a) Ghazals :—

> HAFíZ: All ghazals of ردیف التاء
> and those beginning with
> دوش وقت سحر از غصه نجاتم دادند
> دوش دیدم که ملائک در میخانه زدند

> NAZEERI : All ghazals of
> ردیف التاء

(b) Masnavi.—

Mantiquttair by Attar.

4th PAPER—Later Prose and Peotry—

Sarguzasht-i-Haji Baba Isphehani
(edited by Dr. Phillott, Calcutta).

Qasai-l Qaani (selections by Dr.
Phillott, Calcutta). From beginning
to the end of page 50 together with
the Qasaid beginning with.

آمد به بزم دوش يكے سادہ پسر بر

ورد آمدں گشت جيمدوں زاشک جيمدوں زاے مں

عيدست وجام زر نشاں،از مي گرانبار آمدہ

عيدست و ساقي در قدح صهبا زمينا ريخته

ماہ مں ماند بسر دار سرو جولاں داشتي

نهاني از نظر اے بى نظير از بس عيانستي

5th PAPER—Special Study—

Either

Group A.—Literature : Firdausi, Vol. I,
Sohrab and Rustam and Vol. II
complete with special refetrence to
Math. Arnold, Browne, Warner,
and Shibli

Or

Group B.—Indian History ; The Reign of
Jahangir from original sources
with special reference to Tuzuk-i-
Jahangiri and Iqbal-namah.

6th PAPER— History of Literature—

BROWNE : Literary History of Persia Vols. I
and II. and History of Persian
Literature under Tartar Dominions.

7th PAPER—Composision including Essay in Persian on any subject connected with the critical study of Persian Literature.

Note—Questions on حدائق البلاغة and معيار الاشعار wil also be set. Students who offer Persian are required to have such a knowledge of the Etymology of Arabic language as wil enable them to explain all Arabic words and phrases occurring in the Text.

Sanskrit

There shall be seven papers :—

1ST PAPER.—

Sanskrit Literature:—

(a) Macdonell   ... Vedic Reader

(b) Yajnavalkya ... Achar & Vyavahar Adhyaya with mita-Kshara commentary.

(c) Magh   ... Shishupal Vadh III and V

2ND PAPER.—

Indian Philosophy :—

(a) Chhandogyopanishad with Shaubrobhashya,

(b) Kesava Misra ... Tarkabhaha

(c) Sadanaud   ... Vedant Sar

3RD PAPER :—

Literary and Cultural History of India (with outlines) of the political events in Ancient India

(a) Imperial Gazetter... Vol II Chapters I-IX
(b) Literary History of India by Frazer
(c) Macdonnell's ... History of Sanskrit Literature

Either:—

Sanskrit language and Literature

4TH PAPER.—

(a) Kavya Prakasha I, II, VII, and X
(b) Naushadheya Charit I, II, VI, VII, VIII
(c) Kirataryeiniaja III, IV, V, VI
(d) Kadambari Purvabhag
(e) Vritter Retuakar

5TH PAPER :—

(a) Dasbrupak
(b) Sahityadarspan III, IV, V, VIII, and XI
(c) Ratnavali
(d) Mudra Rakshasa

6TH PAPER:—

(a) Sanskrit Grammar
Bhattoji Diskhit... Sidhant Kaumudi
... Karaka & Saunes
Varadoraj ... Laghusedhant Kaumudi

(b) Sanskrit Literature

Macdonnell	...	History of Sanskrit Literature
Dr. Keith	...	Vedic Akhyana and Sanskrit Drama (J. R. A. S. 1911 pp 979 —1009 and 1912 pp. 411-438)
Ridgeway	...	Dramas and Dramatic dances (Section IV on India pp. 121-216)

Or

Philosophy

4TH PAPER.—

    (a) Gautama   ... Nyayasutras with Bhasya

    (b) Vishvanath   Nyayamuktavali.
        Panchanam

5TH PAPER.—

    (a) Vachaspati Misra SankhyatattvaKeumendi

    (b) Kern   ... Manual of Budhism (Indian)

6TH PAPER.—

    (a) Badarayana   ... Brahmasutras with shari-rekibhashya Chetusutr[1]

    (b) Vedantaprebhaka

(c) Patanjali   ... Yog Sutras with Vyas bhashya.

Or

Dharmeshastra

4TH PAPER.—

    (a) Jaimini—Mimansa-Sutras with (a) Shebarbhasye (Tarkpada only) and (b) Subodhmi on I-XII

    (b) Mimausa—Nyaya Praksh

    (c) Yaynavalhya   Yagnavellyasmiti   with mutashra or Vyavahradhyaya

5TH PAPER.—

    (a) Katyayue   ... Shrausutra

    (b) Paraskara   ... Grebyasurra

    (c) Manu   ... Manave Dharmeshastra

6TH PAPER.—

History of Dharmeshastra Literature.—

    (a) Buhler   ... Sacred Laws and Institutes of Manu (S.B.E. Vols II, XIV and XXV Introduction only)

    (b) Oldenberg   ... The Grehyasutras [S.B. E. XXIX, XXX, Introduction only)

(c) Pollock (Editor)   Manies Anc. Law.

Books recommended.—

Macdonell   ...   History of Sanskrit Literature.

Or

Pali, Prakrit, Epigraphey and Palaeoraphy

4TH PAERR.—

     (a) L. Anderson   ...   Pali Reader
     (b) Muller   ...   Pali Grammar
     (c) Raj Shakhr   ...   Kapuramajan
     (d) Varuchi   ...   Pralerita Gramur

5TH PAPER.—

Asoka Inscriptions.—

History of the Northern India Alphabets with special reference to Brehmnim and its derivatives.

6TH PAPER.—

Gupta Inscriptions.—

The origin and use of the Vikram and Saka eras.

NOTE :—Historical questions on the above will be asked with special reference to Maurya, Kusave, and Gupta periods.

Early History of India (600 B. C. to 1200 A. D.)

Or

Vedic language and Literature

4TH PAPER.—

Vedic Literature.—

    (*a*) Peterson :   ... Selected Hymns from the Rigveda (Bombay Sanskrit Series No. XXXVI.)

    (*b*) Keshi Nath Sastri   Avtey Brahmana Book II (Anandiashram Series Vol XXXII)

Books recommended.—

1. Macdonnell ... Vedic Grammar for students.
2. Macdonnell ... History of Sanskrit Literature Chapters I—IX.
3. Sayana   ... Rigvedabhesabhyebhinuler.

5TH PAPER:—

Historical Vedic Grammar and Philology.

    (*a*) Vedic Gammar.

        1. Saunaka ... Rkopratihahbya.
        2. Arnold ... Historial Vedic Grammar
        3. Whitney ... Historial Sanskrit Grammar.

    (*b*) Philology.

        1. Giles   ... Manual of Comparative Grammar (Introduction only)
        2. Whitney ... Linguestic and Oriental Studies First Series.

3. Gites   ... Introduction to Comparative philology (Oriental Books Supplying Agency Bombay).

6TH PAPER :—

Vedic Religion and Mythology.

    (a) Vedic Religion.

        1. Bloomfield. Religion of the Vedas.

        2. Hopkins ... Religions of India.

        3. Maxmuller Hibbert Lecturers on the origin and growth of Religion.

    (b) Vedic Mythology.

        1. Macdonell... Vedic Mythology.

        2. Rogozin ... Vedic India.

7TH PAPER:—*Essay.*

    The subject of the Essay will be one of the following, selected by the student.—

        (a) Literature.

        (b) Pali and Prabrita.

        (c) Philosophy.

        (d) Veda.

        (e) Dharmashastra.

Mathematics

Each candidate shall have to offer 8 papers.—

1st PAPER.—

Algebra, Trigonometry and Theory of Equations as in Paper I (Honours course).

2nd PAPER.—

Pure and Analytical geometry of two dimensions as in paper II (Honours course).

3rd PAPER.—

Calculus as in (Honours course) Paper III.

4th PAPER.—

Geometry of three dimensions and Differential equations as in paper IV (Honours course.)

5th PAPER.—

Spherical Trigonometry and Mathematical Astronomy as in paper V (Honours course.)

6th PAPER.—

Math. Astronomy and Hydrostatics as in paper VI (Honours course.)

7th PAPER.—

(a) Attractions and potentials of rods, discs and spheres. Gauss' Laplace's and Poisson's theorems.

(b) Rigid Dynamics.—in two and three dimensions including motions of sphere rolling on a plane, cone or sphere; the simple gyroscope ; Euler's and Lagrange's Equations with simple application to systems.

8TH PAPER.—

And one paper showing specialised knowledge of one of the following.

(a) Elliptic functions. Theory of functions of complex variable.

(b) Harmonic Analysis, Hydrodynamics and Theory of Tides.

(c) Problem of three bodies, Lunar and Planetry Theory

(d) Differential Geometry and Theory of higher plane curves.

(e) Theory of functions of a real variable and theory of functions of a complex variable and theory of aggregates.

(f) Theory of functions and complex variable together with the theory of Differential Equations.

(g) Advanced Dynamics and theory of Relativity.

(h) Differential Geometry and Differential Equations.

Philosophy

Candidates who shall be admitted after having obtained the Ordinary degree of Bachelor of Arts of this University or of another recognised University, shall be examined in the following papers in addition to the papers and *Viva Voce* for the B.A. (Honours.)

1ST PAPER.—

Special Philosopher: one of the following:—

- (a) Kant
- (b) Hegel
- (c) Descartes, Spinoza, Leibnitz
- (d) Locke, Berkeley and Hume
- (e) Averoes (Ibn-i-Rushd)
- (f) Saunkhya-Philosophy

2ND PAPER.—

One of the alternative courses of paper V of the B. A. (Honours) excepting the one otherwise selected by the candidate. Candidates who shall be admitted after having obtained the Bachelor degree with Honours shall either be examined in the above two papers or shall have to present a dissertation and submit a written examination in the subject of their dissertation. In addition to the above there shall be a *viva voce* Examination in each case.

Economics

There will be nine papers. First four papers are compulsory; for the remaining five, students may take either course A or B.

1st PAPER.—

Scope and Method of Economics. Theory of Consumption and Exchange, Intermediate Trade.

2nd PAPER.—

Theory of Production and Distribution.

3rd PAPER.—

Money, Banking, Foreign Exchanges Elementary Statistics.

4th PAPER.—

Public and Join Stock, Finance : Industrial and Commercial Organisation (including the Factory System and Trusts)

In each of the above papers the candidate will be expected to choose his illustrations and examples, more often from Indian than from foreign conditions, except when the facts to be illustrated are not known in India.

In all papers a knowledge of Economic History is expected, the History being studied in relation to the modern conditions of each subject.

Either Course—A

5TH PAPER.—

Advanced Economic Theory (including diagrammatic and simple mathematical treatment) with elaboration of the theories of wages, population and profits. History of Economic Theories from the fifteenth century beginning with the Physiocrats.

Candidates will chose one of the following alternatives:—

6TH PAPER.—

(a) Trade Unions and Labour Problems Conciliation and Arbitration ; Unemployment and social insurance ; factory legislation and welfare management ; standard of living ; housing reform. Distributive Co-operation. Productive co-operation and profit-sharing.

Or

6TH PAPER.—

(b) Social and Commercial Theories. Laisser Faire. Socialism, Syndicalims, and Guild socialims. Communism and the Soviet system. Anarchism. Social teachings of Compte, Le Play, Ruskin and

William Morris. Free-trade, Protection, and the Colonial system. Imperial Preference.

7TH PAPER.—

Administration, mainly local. Rural Economics in India (including agricultural improvement, rural education, agricultural credit, co-operation, and local industries).

8TH PAPER.—

Essay.

9TH PAPER.—

Viva Voce Examination.

The above to be studied in relation to Indian as well as to European and American conditions. In all subjects a knowledge of the historic growth to present conditions will be excepted.

or Course B

5TH PAPER.—

Advanced Economic Theory (including diagrammatic and simple mathematical treatment) with elaboration of the theories of wages, population and profits. History of Economic Theories from the fifteenth century begining with the Physiocrats—(same as paper V of Course A).

6TH PAPER.—

Theory and Practice of Statistics.

7TH PAPER.—

Essay on Economic Theory.

8TH PAPER.—

Special subject taken in detail.

(The Subject to be specified by the University Professor of Economics twelve months before the date of the Examination.)

9TH PAPER.—

viva voce Examination.

Note-Books of Practical work, and four essays done during the session to be shown up and passed by Examiners with a certificate of the University Professor that to the best of his knowledge the essays are the candidate's own work.

In all subjects a knowledge of the historic growth to present conditions will be expected.

List of books useful for Reading and Reference by M. A. Students

NOTE:—The latest edition of each work is intended, except in the case of classical work by Adam Smith, Malthus, etc.

I.—General Economics and Economic Theory

1. Marshall(A.) ... Principles of Eonomics.
2. Taussig(F.W.)... Principles of Political Economy

3. Keynes ... The Scope and Method of Political Economy.

4. Moreland ... Introduction to Economics.

5. Chapman (S. J.) Outlines of Political Economy.

6. Carver (T.N)... Distribution of Wealth.

7. Carver(T.N.)... Principles of Political Economy (Ginn and Co.)

8. Clark (J.B.) ... Essentials of Economic Theory.

9. Wicksteed ... Common Sense of Political Economy.

10. Wicksteed ... Alphabet of Economic Science.

11. Fisher ... Nature of Capital and Income.

12. Jevons(H.S)... Essays in Economics.

13. Seager ... Principles of Economics.

14. Marshall, Field. Economic Materials. and others.

15. Fisher ... Rate of Interest.

16. Fisher ... Purchasing Power of Mony.

17. Seligman ... Principles of Economics.

18. Wichsteed ... Co-ordination of the Laws of Distribution.

19. Pigou ... Economics of Welfare.

II.— History of Economic Theory

1. Price ... History of Political Economy in England
2. Ingram ... History of Political Economy in England
3. Haney ... History of Political Thought in England
4. Gide and Rist... History of Economic Doctrines
5. Cannan (E.) ... A History of the Theories of Production and Distribution in English Political Economy from 1776—1848.
6. Ashley ... An Introduction to English Economic History and Theory.
7. Adam Smith ... Wealth of Nations.
8. Malthus ... Essay on Population (2nd or later edition).
9. J. S Mill ... Principles of Political Economy

III— Trade Unionism

1. Webb ... Industrial Democracy : A Study, Trade Unionism.
2. Webb ... History of Trade Unionism.
3. Lloyd ... Trade Unionism.

IV.— Socialism

1. Kirkup   ... History of Socialism.
2. Orage   ... National Guilds.
3 Henderson   ... The Case for Socialism.
4 Spargo and
   Arner   ... Elements of Socailism.
5. Cole   ... World of Labour.
6. Salter   ... Karl Marx and Modern Social-
        ism

V.— Municipal Government and Trading

1. Dawson (W.H.) Municipal Life and Government
        in Germany.
2. Knoop   ... Principles and Methods of
        Municipal Trading.
3. S. and B. Webb English Local Government.
4. Fairlie (J. A.)... Municipal Administration.
5. Ashley (Percy) English Local Government.
6. Forrest   ... The Indian Municipality.

VI — Social Conditions

1. Rowntree   ... Poverty.
2. Rowntree   ... Land and Labour—Lessons
        from Belgium.

3. Booth ... Life and Labour of the People in London.

4. S. and R. Webb. The Public Organization of the Labour-Market.

5. Dearle ... Industrial Traning.

6. Bowley and ... Livelihood and Poverty.
   Burnett-Hurst.

7. A. C. Pigou... Umployment (Home University Series.)

8. Nettlefold ... Practical Housing.

VII.—Co-operation and Profits Sharing.

1. Ewbank (R.B.) Indian Co-operative Studies, Bombay University Studies No. 2, Oxford University Press,

2. Fay ... Co-operation at Home and Abroad.

3. Wolff ... Village Banks.

4. D.F. Schloss ... Methods of Industrial Remuneration (3rd edition, 1907).

5. Board of Trade... (Labour Department, Report on Profit Sharing and Labour Copartnership in the U. K. 1912.)

6. Wolff   ... Co-operative Banking.

7. Aneurin Wil- Copartnership and profit sharing
   liams.   ... (Home University Series).

Annual   reports on Co-operativ Credit
Societies in the U. P. and the C. P.

The Report of the Maclagan Committee   on
Co-operation.

Government of India Resolution on Co
operation.

Government of the U. P. Publications of
the Registrar of Co-operative Societies.

VIII.-Industrial Organisation.

1. Clark   ... Problem of Monoply.

2. Hirst   ... The Story of the Trusts.

3. Macrosty   ... The Trust Movement in British
                    Industry.

4. Hobson   ... Evolution of Modern Capitalism.

5. Jenks   ... The Trust Problem.

6. Ripley (Z)   ... Trusts, Pools and Corporations.

7. Marshall   ... Industry and Trade.

IX.—Factory Legislation

1. Hutchins and
   Harrison. ... History of Factory Legislation in England.

2. Kidd, W. ... Factory Legislation in India.

X.—Economic History

1. Toynbee ... Industrial Revolution

2. Ashley, W. ... Economic Organisation of England.

3. Price ... A short History of English Commerce and Industry.

4. Cunnigham ... The Industrial Revolution.

5. Lipson (E.) ... The Economic History of England—Middle Ages, (A. and C. Black)

6. Cambridge Mo-
   dern History ... The Latest Age, Vol. XII, Chapters on Economic Developments.

7. Lucas ... Beginnings of English Overseas Enterprise.

8. Coman ... Industrial History of the U. S. A.

9. Ashley, P. ... Modern Tariff History.

XI.—Statistics.

1. Bowley ... Elements of Statistics.
2. Bowley ... Elementary Manual of Statistics.
3. Elderton ... Primer of Statistics.
4. Yule ... An Introduction to Theory of Statistics.

XII.—Money, Finance and Banking

1. Jevons ... Money and the Mechanism of Exchange.
2. Price ... Money and its Relation to prices.
3. Clare ... Money Market Primer.
4. Fisher (I.) ... Why is the Dollar shrinking?
5. Jevons (W. S.) Investigations in Currency and Finance.
6. Cooper ... Financing an Enterprise.
7. Hirst ... Stock Exchange.
8. Withers ... Stocks and Shares.
9. Withers ... The Meaning of Money.
10. Fiske ... The Modern Bank.
11. Easton ... Money, Exchange and Banking.
12. Goschen ... The Foreign Exchanges.

13. Clare ... A. B. C. of the Foreign Exchanges.

14. Bastable ... Theory of International Trade

15. Keynes (J. M.) Indian Currency and Finance

16. Shiras(G.F.)... Indian Finance and Banking.

17. Spalding(W.F.) Eastern Exchange, Currency and Finance (Pittman).

18. Robertson(D.H.) A study of Inductrial Fluctuation.

XIII.—Public Finance

1. Plehn ... Introduction to Public Finance

2. Bastable ... Public Finance.

3. Stamp ... Fundamental Principles of Taxation.

XIV.—Economic Geography

1. Bartholemew and Lyde ... Atlas of Economic Goegraphy

XV.—Land Revenue, Agriculture and Co-operation in India

1. Moreland (W.H.) Revenue Administration of the (U. P.)

2. Stracehy ... India.

3. Baden-Powell... Land Revenue and its administration.

4. Alston   ... Indian Taxation.

5. Indian Gazetteer, Vols. III and IV.

6. The Indian Year Book for the current year.

7. Government of India Budget speech, and explanatory statement for current and last preceding financial years.

8. Report of the Royal Commission on Indian Finance and Currrency, 1914.

9. Report of the Committee on the Rise in prices. Datta report and the Government Resolution thereon.

10. Government of India Statistical Abstract.

11. Government of the U. P. Publications of the Revenue and Land Record Departments.

12. Decenninal Report on the Moral and Material Progress of India, Chapters X—XVII (inclusive) XIX and XXIII. Published, 1913

13. TODD : The World's Cotton Crops.

14. MANN : Life and Labour in a Deccan Village I and II.

16. MORELAND : Agricultural Conditions of the United Provinces.

17. KEATINGE : Rural Economy of the Bombay Deccan.

18   SLATER : Some South Indian Villages.

19   JEVONS : The Consolidation of Agricultural
Holdings (Bulletin No. 9 of
Economic Department).

20   MACKENZIE (N.F.) : Notes on Irrigation
Works (Constable & Co., 1910).

XVI.—Journals

1.   Economic Journal, London.

2.   Quarterly Journal of Economics, Harward.

3.   Indian Journal of Economics. (Economics
Depatment) University of Allahabad.

4.   Journal of the Royal Statistical Society.

History

A Student who has taken Ordinary B. A.
degree will be expected to take Parpers 1, 2, 3
and three others.—

1ST PAPER.—

Essay.

2ND PAPER.—

English History (Same as for B.A. Honours)

3RD PAPER.—

Political Science (Same as for B.A. Honours)

4TH PAPER.—

Revolutionary Europe (Same as for B.A. Honours)

5TH PAPER.—

Europe in the 19th century (Same as for B. A. Honours)

6TH PAPER.—

Ancient India up to 1000 A. D. (Same as for B.A. Honours)

7TH PAPER.—

Mahmud of Ghazni to Firoz Shah.

Prescribed.—

1. Tarikh-i Yamini. (Extracts in Elliot and Dowson Vol. 2)

2. Minhaj-us-Siraj—Tabakati Nasiri. (Ravety's tranlation)

3. Zia-ud-Din Barni—Tarikh-i-Firoz Shahi. (Extracts in Elliot and Dowson Vol. III)

4. Afif—Tarikh-i-Firoz Shahi. (Extracts in Elliot and Dowson Vol. III.)

Recommended.—

1. Farishta—Gulshan-i-Ibrahimi. Vol. 1. (Tranlated by Briggs)

2. Ishwari Parshad—India Under the Tuglaks (In the Press)

3. Ibni Batuta. (Urdu translation by Syed Husain)

4. Thomas—Chronicles of the Pathan Kings of Dehi.

5. Aiyanger—The Mohammadan Invaders of Southern India

6. Todd—Annals of Rajisthan.

8TH PAPER.—

Akbar to Aurangzeb.

Prescribed.—

1. Al-Badauni — Muntakhab-ut-Tawarikh Vol.2 (trans. by Lowe)

2. Abul Fazal—Ain-i-Akbari (Blochmann and Jarrett)

3. Beveridge—Memoirs of Jahangir.

4. Abdul Hamid Lahori—Padshah Nama (Persian Text)

5. Khafi Khan—Muntakhab-ul-Lubab.Vol. 2.

Recommended.—

1. V.A. Smith-Akbar the Great Mugal.

2. Modi—Parsis at the Court of Akbar.

3. Maclagen—Jesuit Missionaries at the Court of Akbar (J.R.A.S. 1896)

4. Moreland-India at the Death of Akbar.

5. Nizam-ud-Din—Tabakat-i-Akbari.

6. Von Noer—The Emperor Akbar.

7. Motamid Khan—Iqbal-Nama-i-Jahangiri.
8. Beni Prasad—Jahangir.
9. Mohammed Swalih Kamboh—Amal-i-Sualih.
10. Mohammed Kazim—Alamgir Nama.
11. Khafi Khan—Muntakhab-ul-Lubab. Vol. 2.
12. Nimat Khan—Waqai.
13. Bernier—Travels.
14. Ranade—Rise of the Maratha People.
15. Kincaid and Parasnis—A History of the Maratha People. (Introduction and Chapters 9 to 23)
16. Elliot and Dowson—Vols. 5, 6, and 7.

9TH PAPER.—

Clive to Wellesley.

Prescribed.—

1. Forrest—Clive.
2. Selections from the State Papers of the Governors General of India (Warren Hastings)
3. Owen—Selections from Wellesley's Despatches.
4. Owen—Selections from Cornwallis' Despatches.

Recommended.—

1. Hill—Bengal in 1757 (Introduction)
2. Monckton-Jones—Warren Hastings in Bangal. (1772 to 177)
3. Ascoli—Early Revenue History of Bengal.

4. Strachey—Hastings and the Rohilla War.

5. Grant Duff—History of the Marathas.

6. Malcolm—Political History of India.

7. Miles—Haider Ali.

8. Milles—Tipu Sultan.

9. Aitchison—Treaties and Sanads.

An Honours Graduate can take his M. A. degree after a year's residence by passing in paper I and two others to be selected from 7, 8 and 9.

Physics

This examination will comprise 7 papers in Theory and a practical Examination.

1st PAPER.—

Heat.

2nd PAPER.—

Properties of Matter and Sound.

3rd PAPER:—

Light including the Electromagnetic Theory of Light.

4th PAPER:—

Electricity and Magnetism.

5th PAPER.—

Scientific Method, and Essay.

6TH & 7TH PAPER.—

Any two branches of Physics chosen out of the following list, subject to the approval of the Chairman of the Department of Physics.

1. Kinetic Theory of Gases.
2. Advanced Thermodynamics and Laws of Radiation.
3. Dynamical theory of Sound.
4. Optical theories.
5. Geometrical optics and theory of Optical instruments.
6. Spectroscopy.
7. Theory of Relativity.
8. Theory of Electricity and Magnetism.
9. Technical Electricity.
10. Electrolysis and theory of solutions.
11. Radioactivity and the Election theory.
12. Conduction of electricity through gases.
13. Magneto-optics.

The practical examination shall consist of two parts.

(a) Part I corresponding to the first four papers.

(b) Part II corresponding to the last two papers.

The practical work to be done by the candidates will be directly connected with the special

branches chosen by them and would be prescribed from year to year.

Honours Graduates can get the M. Sc. degree in Physics either by submitting a dissertation on the basis of research work done by them in the University laboratories or by examination which will comprise papers VI and VII and part II of the practical examination. Research candidates may be exempted wholly or in part from written and practical examination. They shall, however, be examind orally by a Board of examiners.

Candidates for M. Sc. examination in Physics will be required to pass in the written as well as the Practical examination separately.

Chemistry.

Students who desire to take their M. Sc. degree after having taken the Pass degree in B. Sc. shall be examined in the following subjects :—

I. Any two of the following 3 branches of study to the same standard as that of the honours degree.

Marks.

(a) Physical chemistry ... 1 paper 100
(b) Inorganic chemistry... 1 paper 100
(c) Organic chemistry ... 2 papers 50 each.

II. Advanced course in the 3rd branch of the subject not selected under heading I. two papers 100 each.

III. A course of commercial analysis of the the same standard as that of the honours degree I paper 50 of marks.

The practical examination shall consist of 3 practical examinations :—

Marks.

1. In two of the subjects selected under heading I. the standard to be the same as that of the honours degree. 200

2. In the subject selected under heading II. 200

3. Practical commercial analysis the standard to be the same as that of the honours degree ... 50

In the advanced course selected under heading II candidates shall be expected to be familiar with recent original papers besides standard text books.

A candidate who has taken the B.Sc. degree with honours may proceed to take the M. Sc.

degree either by submitting a thesis or taking any one of the following subjects :—

		Marks.
1.	Anvanced Inorganic ... 2 papers	100
2.	Advanced Physical ... 2 papers	100
3.	Advanced Organic ... 2 papers	100
Practical Examination in...		
the selected branch ...		200

The standard of examination shall be the same as under Group II for the M. Sc. degree for Pass students.

M. A. (HONOURS) EXAMINATION

English

Candidates who have passed the B. A. Honours shall at the expiration of one further year's residence persent a dissertation and submit a written examination in a subject selected from the following :—

1. W. B. Yeats and his Circle.

2. The Restoration Drama.

3. The English Novel in the Nineteenth Century.

4. The Evolution of the Novel.

5. The Elizabethan Playhouse.

6. The Propagandist Drama.

7. The English Chronicle Play.

8. The Tudor Novel.

9. The Ballad.

Any literary subject not in the above list may be selected by a candidate if he so desires, providing the subject chosen has the sanction of the Chairman of the Department and that he makes his request in the beginning of the acadmic year.

BACHELOR OF LAWS EXAMINATION

The following Text-books and Acts are recommended:—

For the Previous Examination 1925.

1. Roman Law ...	Hadley's Roman Law.
2. The Law of Contracts.	Anson's Principles of the Law of Contracts. The Indian Contract Act, No. IX of 1872. Pollock and Mulla's Contract (Student edition). Tybjia's Contract.
3. The Law of Easements and Torts.	The Indian Easements Act, No. V of 1882. Mitra's Lecture on Easements. Underhill on Torts (Indian edition) *Or* Ratan Lal on Torts.
4. The Law of Evidence.	The Indian Evidence Act No. 1 of 1872. Cunningham—The Indian Evidence Act (Edited by Shephard) Cockle's Cases on Evidence.
5. Criminal Law and Procedure	The Indian Penal Code, Act No. XLV of 1860. Nelson—The Indian Penal Code. The Code of Criminal Procedure, Act. No. V of 1898 (except schedules I and II)

6. Constitutional Law.

Dicey on the Constitution. The Government of India Act of 1915, as amended by the Acts of 1916 and 1919.

For the Final Examination 1924.

1. Civil Procedure including principles of Pleading.

Mulla's Civil Procedure Code (student edition).

Limitation

Rustomji's Limitation Act (student edition).

2. The Law relating to Land Tenures, Rent and Revenue.

As to Central Provinces.—
Tenancies Imperial Act XI of 1898 amended by Act XXI of 1899 and C. P. Act III of 1917.

Land Revenue C. P. Act II of 1917. (For rules made under these Acts, the Revenue Manual, C. P. Vol. 1, may be consulted).

As to United Provinces.—
Act No. II of 1901 (United Provinces). Act No. III of 1901 (United Provinces); Oudh Rent Act, No. XXII of 1886.

Baden Powell's Short Accounts
of the Land Revenue and its
Administration in British
India, with a sketch of the
Land Tenures.

Agra Pre-emption Act 1922.

3. Hindu Law ... Mulla's Hindu Law ; Sen's
Hindu Jurisprudence.

Or

Mayne's Hindu Law.

4. Mohammadan
Law.

Abdur Rahim—Principles of
Mohammadan Jurisprudence
(T.L.L. 1907) Chapters 1,2,
3, 6, 8. 11 & 12. Wilson's
Mohammadan Law revised
by A. Yusuf Ali. Tybji's
Mohammadan Law (Student
edition).

5. The Law rela-
ting to Trans-
fer of Pro-
perty, etc.

The Transfer of Property Act.
(IV of 1882). Shephard and
Brown—Commentaries on the
Transfer of Property Act.
Chapters relating to Mortga-
ges in Snell's Equity, *i.e.,*
Chapters 19, 20, & 21 of
the 18th edition.

6. Equity with special reference to Trusts and Specific Relief.

The Indian Trust Act (No. II of 1882). The Specific Relief Act. (No. I of 1877). The chapters on the History and Maxims of Equity, on Trusts, on Mistake, on Fraud— Actual and Constructive, and on Specific Performance in Snell's Principles of Equity, *ie*, Chapters 1 to 9 inclusive, and Chapters 28, 29, 30 & 35, 18th edition.

7. Jurisprudence:- Maine's Ancient Law. Salmond's Jurisprudence. Ilbert's Government of India. The Historical introduction' and the supplementary chapter (Published in 1910 and treated at the end of the last edition) only.

Additional paper for those who want to practise in the Punjab,—

8. The Punjab Land and Customary Laws.

1. Punjab Land Revenue Act (XVI of 1887 by Mohan Lal.

2. Punjab Tenancy Act (XVII of 1887) by Mohan Lal.

3. Punjab Pre-emption Act. (I of 1913). by Jiwan Singh.

4. Digest of Customary Law (1922 Edn.) by Rattigan.

5. Punjab Alienation of Land Act. (XIII of 1900.) as amended,

NOTE I.—Every Act mentioned in the above list shall be understood to mean the Act with all subsequent amendments thereof.

NOTE II.—The following leading cases, English and Indian dealing with Hindu Law, Mohammadan Law, Equity, the Law of Contracts, Easements, Torts and Mortgages are recommended to be studied in connection with.—

(a) The Law of Contract.

1. Mohori Bibi *Vs.* Dharmodas Ghose I.L.R. 30 Cal. 539 P.C.

2. Carlill *Vs.* The Carbolic Smoke Ball Co. (1893) 1 Q. B. 256 C. A.

3. Raffles *Vs.* Winchelhans 33 L.J. Ex.160.

(b) The Law of Easements and Torts.

1. Tuff *Vs.* Warman 26 L.J. C. P., 263 and 27 L. J. C.P. 322.

2. B. Ganesh Dutt Singh *Vs.* Mugneeram Chowdry 11 Bengal L. R. 321 P. C.

3. Madras Railway Co. *Vs.* Zamindar of Carvantenagarum L. R. 1 Ind. App. 364.

(c) The Law relating to Transfer of Property.

1. Raja Kishan Datt Ram *Vs.* Raja Mumtaz Ali Khan I. L. R. 5 Cal. 198 P. C.

2. Gokal Das Gopal Das and another *Vs.* Puranmal Premsukdas I. L. R. 10 Cal. 1035 P. C.

3. Beni Ram and another *Vs.* Kundan Lal and others. I. L. R. 21 All 496 P. C.

(d) Equity.

1. The Mussoorie Bank *Vs.* A. C. Raynor I. L. R. 4 All 500 P. C.

2. Willmott Vs. Barber 15 Ch. Div. 96.

3. Burn and Co. *Vs.* MacDonald I. L. R. 36 Cal. 354.

(e) The Hindu Law.

1. Hunooman Pershad Pandey *Vs.* Mussammat Babooee Munraj Koonweree, 6 M. I. A. 393 P. C.

2. Appovier *Vs.* Rama Subba Aiyan and others. 11 M. I. A. 75 P. C.

3. Girja Bai *Vs.* Sadashiv Dhundraj, I. L. R. 43 Cal. 1031.

4. Sahu Ram Chandra *Vs.* Bhup Singh. I.L.R. 39 All. 137.

(f) The Mohammadan Law.

Gobind Dayal *Vs.* Inayatullah, I. L. R. 7 All. 775 F. B.

2. Khajooroonissa *Vs.* Roshan Jahan, I. L. R. 2 Cal. 184 P. C.

3. Jafri Begum *Vs.* Amir Mohammad Khan, I. L. R. 7 All. 822 F. B.